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ABSTRACT

This volume presents five papers on higher education institutional research in Maryland, all of which were originally presented at annual meetings of the Maryland Association for Institutional Research from 1993 through 1995. The first paper is "A Day in the Life of an Institutional Researcher: Past, Present and Future" (Merill Pritchett). It identifies five broad developments in institutional research (IR): demography, technology, the changing nature of work, changes in the economy, and changing ideas about public institutions, particularly higher education. The second paper is: "Information and the Continuous Improvement of Enrollment Management" (Craig A. Clagett and Helen S. Kerr). It offers a conceptual framework for organizing the information necessary to support a successful enrollment management program and gives three examples of the model's application at different types of institutions. The third paper, "Freshmen for Sale: The Role of Financial Aid in Matriculation of Admitted Students" (Yun K. Kim), focuses on populations most likely to accept a financial "offer" and matriculate and determination of the peak total aid amount to maximize yield. The fourth paper is "Reengineering the Academy: Is There a Role for Institutional Research?" (Merill Pritchett). This paper looks at reasons campuses are implementing fundamental reengineering, results of their efforts, and the role of IR in reengineering efforts. The last paper is "Institutional Research: What Should We Expect?" (Craig A. Clagett and Helen S. Kerr). This paper identifies expectations that sponsors and consumers should have of IR and expectations the IR office should have of the institution. It also describes one performance monitoring indicator system for institutional research. (Most of the papers contain references.) (CK)

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Volume III Fall 1995

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Edited by Craig A. Clagett

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CONTENTS

Foreword v

A Day in the Life of an Institutional Researcher: Past, Present and Future — Merrill Pritchett 1

Information and the Continuous Improvement of Enrollment Management — Craig A. Clagett & Helen S. Kerr 11

Freshmen for Sale: The Role of Financial Aid in Matriculation of Admitted Students — Yun K. Kim 31

Reengineering the Academy: Is There a Role for Institutional Research? — Merrill Pritchett 38

Institutional Research: What Should We Expect? — Craig A. Clagett & Helen S. Kerr 46

Appendix

MdAIR Chronology 66

Constitution and Bylaws 68

4

FOREWORD

The Maryland Association for Institutional Research is proud to present Volume III of ***Maryland 2000, Journal of the Maryland Association for Institutional Research.*** The journal chronicles a sample of the papers and presentations delivered during the previous annual meetings and provides evidence of the advanced ideas that researchers and planners contribute to their institutions. The journal is addressed not just to those engaged in institutional research but also to presidents, members of governing boards, to state education agencies, and to others concerned with higher education.

A key function of MdAIR is to serve as an information exchange for its members. As demands for accountability increase, in a milieu of diminishing resources, staying abreast of what is happening in other institutions becomes more critical than before. ***Maryland 2000*** is a key component in the association's efforts in this regard.

Gathered in this issue of the journal are articles on such cutting edge issues as reengineering the academy, the continuous improvement of enrollment management, and the role of financial aid. Two articles explore the present and future of institutional research, including one based on responses to very provocative and probing questions posted by the authors on the MdAIR electronic discussion list. A brief history of MdAIR is also included. The writers are highly respected practitioners. Hopefully this volume will stimulate some creative thinking, and lead the readers to assess and examine current practices in light of a changing environment.

A publication of this magnitude is highly cooperative and dependent on a few dedicated MdAIR members. We thank the authors for their excellent papers. Foremost recognition is due to Craig Clagett, editor of the journal. Thanks are also due to Pat Diehl for her desktop design and production of the journal. Finally, we thank the authors of all the papers presented at our annual meetings. It is you who enliven our organization.

Javier Miyares
President, MdAIR

A Day in the Life of an Institutional Researcher: Past, Present and Future

MERRILL PRITCHETT
University of Baltimore

Seventh MdAIR Conference
November 12, 1993

Introduction

What is the future of this thing we call Institutional Research (IR)? In the year 2003 will the IR office be gone, replaced by technology that allows every assistant vice-president and administrative aide to be his or her own institutional researcher? Or will universities and colleges, as they reengineer themselves, realize that IR is necessary to become a true "learning institution" that renews and reinvents itself in world of constant change?

I believe that one approach to answering this question is to look at the past to see what forces and processes shaped the development of higher education and institutional research. The modern practice of IR is strictly a post-World War II and largely North American phenomenon. I think that five broad processes explain this development. Understanding these broad developments can give us get a better idea of how IR developed in the past, why it is the way it is today, and what it might be like tomorrow. These shaping forces are demography, technology, the changing nature of work in America, the ups and downs of the nation's economy, and changing ideas about our public institutions—particularly higher education.

IR Office Log: May 15, 1961

*8:00 President called, wanted to know how the financial projections for the year were coming, needed them for board meeting on Friday. 9:00 Met with Provost and Steering Committee for accreditation self-study, they want enrollment profile for last five years by next week. 1:00 Discussion with registrar over definition of full-time vs. part-time student in med school. Med. school Dean insists that a full-time student is one who takes eight hours…because of clinical experiences…State says we should use 12 and registrar says we have always used 9 hours for full-time designation except in Arts and Sciences which uses 15 for freshman and sophomores and 12 for juniors and seniors. Yuck! 3:30 Met with programmer from DP on attempt to get the IBM 1401 to do crosstabs of race by sex for the Factbook. He mumbled something about the assembler language. Question: should I try to learn that FORTRAN they are talking about in the Math department? Maybe I could program that darn thing myself and not have to deal with that *#$@*% in DP anymore. 4:30 Provost called,*

wants to set up long range planning committee for university, wants me to staff it! 5:30 Reviewed proposed HEGIS report for opening fall enrollment. Paperwork! Memo to self, must catch space shot on TV tomorrow.

The Late 50's and Early 60's

At the end of World War II American colleges and universities enrolled about 1.4 million undergraduates. There was no formal institutional research. Returning G.I.'s swelled that population to 2.4 million, but it was not until 1960 when there were 3.2 million undergraduates that IR began to be recognized as a distinct function. By 1970 there were 7.5 million undergraduates and IR offices existed on many campuses. In 1980 there were 10.8 million undergraduates; by 1985 a regional accrediting agency was *requiring* "an on-going process of institutional research" for its member schools. Full employment of institutional researchers in the south! By 1990 undergraduates numbered 11.2 million, and institutional research was ubiquitous.

Demography, specifically the baby boom, caused this explosive enrollment growth. The "baby boomers", born between 1946 and 1964, because of sheer numbers have shaped much of post-war American history and culture. Nowhere was this more true than in American higher education. The boomers created the challenge of managing enrollment growth in the 60's and 70's and coping with its decline in the 80's and the 90's. The boomers' enrollment patterns are the major shaping force in recent American higher education.

The baby boomers flocked to college in these years because a degree was seen as the passport to the American dream. The world of work in America was changing; it was the beginning of what we now call the post-industrial society, the information age. Increasingly the most desirable jobs required at least some college if not a degree. There were still good paying blue collar jobs but it was increasingly clear to every high school guidance counsellor that a college education was a necessity. They were right and American higher education grew apace.

The prosperity of the times made it possible for those millions of undergraduates to go to college. Not only was the United States the only economic superpower, it was in an unusually prosperous period. The nation had seen several turns of the business cycle in the 1950's: recession, recovery, recession. But beginning in 1961 and continuing through 1967 Americans enjoyed one of the longest periods of unbroken economic growth, coupled with low inflation and an ever-expanding job market. The boomers could go to college because they could afford it or get government grants- in the name of national defense- to pay tuition. They could count on good jobs being available when they graduated. Let the good times roll! We thought they would never end. The booming economy was another factor that promoted growth in higher education. It paid the bills.

The fact that so many young people flocked to colleges and universities in these years is also a reflection of the high esteem that their parents held for these institutions. It is hard to believe today, when college presidents are regarded with the same fish eye that is given members of the House of Representatives, that in the late 50's and early 60's university presidents were seen as pillars of the community, whose opinions on public matters were openly solicited and even occasionally listened to. To be a faculty member was to be somebody! Even

if it was an underpaid somebody. Education was seen as the key to the future of the nation and its colleges and universities were the keepers of the sacred flame of progress.

In fact most Americans felt good about their nation and its institutions. This was the time of the space race, the great challenge to put a man on the moon. Even the greatest social upheaval of that era, the Civil Rights movement, seemed to conform to the nation's optimistic vision of itself; the United States was at last tackling the central dilemma of American history: race. Vietnam was to most Americans an unknown Asian nation and Watergate was only a fashionable Washington address. Most Americans were proud of themselves and their country. They had faith in themselves, their nation, and its public institutions.

All of these things taken together—the boomers, the changing nature of work in the country, the prosperity of the times, the respect for higher education and the general good feeling of Americans for the nation and its institutions—gave rise to an enrollment avalanche that in turn brought about institutional research as we know it. The baby boomers overwhelmed most colleges and universities; the schools had never seen such explosive enrollment increases. This growth created a management crisis for the nation's institutions of higher education; existing practices and long-held traditions were no longer adequate. Presidents realized, some faster than others, that they needed more and better information to manage their institutions. The university or college president faced a crisis of control much like the leaders of American business and industry had faced in the late 19th century. Presidents did not have the staff and tools they needed to cope with the myriad problems brought about by explosive enrollment growth. The development of institutional research was one of the ways that they tried to get the help they needed to run their growing institutions.

Thus, from the beginning IR was more than HEGIS or other required external reporting. IR people were information professionals who could collect data, evaluate it and report it in useful forms to executive decision makers. True, data gathering and analysis were difficult in the early years because researchers had to first establish data definitions and create collection methods to insure reliability. Coping with tremendous enrollment increases meant that most IR studies were focused and very practical: student characteristics, space utilization, budget analysis. Statistics were largely descriptive, and methodological considerations were often secondary. Sophistication in statistics and theoretical rigor would come later as the profession matured, after the students were enrolled and the HEGIS reports done.

Another reason that the practice of IR was primitive in those early years was technology. The evolution of IR is closely tied to advances in computer technology. Microprocessor technology was just beginning to make itself felt in higher education in the late 1950's and early 1960's. Computers and software that could be used by non- data-processing types were just beginning to appear. Oh, for the days of punch cards, assembler language and remote job entry machines! Though friendlier and more sophisticated software appeared at the end of the 60's, writing FORTRAN programs and using the IBM 360 series computer was not a task for amateur or the faint-hearted IR person. Distributed computing, PC's, and spreadsheets lay in the future. Word processing was an IBM Selectric! Technology placed limits on what IR could be expected to accomplish in the late 50's and 60's.

IR Office Log: April 15, 1973

7:30 Came in early so as to get a parking place away from the noon time demonstration on the quad. Forgot last week and car was covered with red paint (blood ?) and smelled like tear gas— who left the window down in the back? Wonder how public information will explain this one to the papers? 9:00 Gave President result of state wide marketing study. He was pleased but didn't appreciate that more prospects wanted business degrees, he still thinks physics—his old field—will make a come back...if only NASA could get the Space Shuttle to work...but the darn tiles keep falling off. 12:00 Had working lunch with Dean of Students, promised IR would conduct campus climate survey for her. She hopes it will prove only a minority of the students are radicals, that most love good ole big State U. Good luck. 2:30 Met with MIS director... wow. That new IBM is really fast. MIS guy promised that MIS would be up and running before the end of the semester, promised that all HEGIS reports would be done automatically. Right on! 3:30 Called Joe at Southern State U., talked about data exchange program and promised to meet him at the AIR Forum at St. Louis to firm it up ... and maybe take in a Cardinal game at Busch stadium. Ain't the beer cold!

The late 60's and the 70's

Even as higher education enjoyed high prestige, large enrollments and growing funding, developments in the late 60's and 70's foreshadowed significant changes to come in the academy. The 70's saw enrollments growing like Topsy; nevertheless, far-seeing educators realized the end of rapid growth was near. By the late seventies the bulk of the baby boomers were already in higher education or through with it. Demographers were already speculating on the impact that this "birth dearth" would have on higher education in the 1980's. Projections of 15 to 20 percent decline were common.

Sustained growth, low inflation, and an ever-expanding job market came to an end in the 70's. A long, frustrating war had drained the financial and human resources of the nation. The business cycle also returned with a vengeance, aided by two oil embargoes. Attempts by government to control inflation backfired—remember wage and price controls under Nixon—and efforts by Carter to ration gas made the embargo worse. The 70's ended with the prime lending rate and inflation hovering in the double digit range. The easy prosperity that underlay the early years was gone and higher education faced years of austerity.

The war in Vietnam powerfully affected American public institutions. The war and the following political scandals at the highest level of government undermined the earlier consensus about the righteousness of American institutions. College campuses themselves became scenes of protest, demonstrations, riots. Many colleges and universities lost some of the special status they had previously enjoyed because of the anti-war activity that took place on campus. At the same time, some students rebelling against the war found colleges and universities to be less than perfect, even corrupt, and in need of radical change. Out with required curriculum! ROTC off campus! Establish peace or ethnic group studies departments! Ban Dow Chemical from recruiting on campus! Colleges and universities were no longer cathedrals of learning, they were part of the real world. They lost prestige and public support because of it.

Institutions of higher education thus faced a whole series of new challenges in this era, some of which institutional research could help with, some not. The people in the IR office

could not reverse the decline of the baby boomers but they could conduct marketing surveys that made their college or university more competitive. IR people could not do much about the rocky economy but they could construct tuition and enrollment forecasting models that could tell the president what the impact of raising tuition would be. Neither could institutional research quell rebellious students but IR could conduct student opinion surveys to see what students were really worried about.

The practice of IR matured in the 1970's. Studies covered a diverse set of topics and researchers used increasingly sophisticated techniques and began to flirt with computer modeling and simulations. The tools did get better. Statistical packages like SPSS and SAS appeared in this era, giving researchers extremely powerful statistical techniques. Some in IR became involved in developing the first MIS on campus. Others set up data exchange programs with campuses around the nation. Everybody had a good time at the AIR Forums.

IR Office Log: September 15, 1992

7:00 Too much to do today! IPEDS reports due this week and new transfer information system file, faculty workload job…all due today. 9:00 Met with Academic V.P. on report of the assessment of undergraduate learning; the schools and colleges still have two weeks to get their reports in but it is clear that not everyone is taking it seriously. The faculty really has not bought into the idea of accountability: looks like more science fiction will be written this year. 10:00 Call from V.P. for Finance, it's official the sixth budget cut in the last eighteen months. State support is down 20 percent…There goes the ole publications budget. Next we will be giving pay back to the state. 1:00 Guy from Information Services lugged the new 486 in. Boy is it fast… it includes Windows and the latest versions of WordPerfect and Lotus. All I have to do is install Paradox and Harvard Graphics and I am really in business. 5:00 President called about administrative database project, wanted progress report. It is coming along slowly but we may yet get that Executive Information System he wants. 6:00 Maybe I should get one of those fancy screen savers to entertain myself while staring at the screen trying to write the assessment report.

The 80's and the early 90's

Bleak projections of enrollment decline in the 1980's proved wrong. The number of traditional-aged students did decline in the decade but overall enrollments went up. Why? Where did the projections go wrong? First, the college-going rate of the 18-24 year-olds increased in the 1980's. Second, the number of students over 25 more than offset the lower numbers of traditional-aged students. Even as the youngest of the baby boomers enrolled, their over 25 sisters signed up in great numbers. Yes sisters, most of the enrollment growth in the 1980's was due to women, many of them returning to college to finish degrees interrupted by child rearing or work. Participation in college also increased among minority students in the 80's, in part because Asian students were classed as minority for the first time. Enrollment by African-Americans decreased. Many of the new enrollees were part-timers, working their way through school because government grants were replaced by government guaranteed bank loans. Many full-time students stayed at home to go to their local community college or regional comprehensive school for the same reason.

The American economy began the 80's at the bottom, recovering by 1983, and again hitting the bottom at the decade's end. The end of the 1981-82 recession saw a long run of prosperity, even if all Americans did not share equally. Some did quite well, thank you, the 80's saw yuppiedom at its high. Lower and middle class Americans found it tougher; real income for them declined in the 80's. Redistribution of income was upwards in the decade.

In 1989 the nation entered into the longest and deepest downturn in the economy since World War II. This was the first white-collar recession in the nation's history as more middle mangers lost their jobs than did their cousins who worked on the assembly line. For the first time those with college educations were hit hard. Their unemployment lasted longer, twice as long as in the 70's, and often they had to take lower paying jobs to survive. Even those with good educations and job skills found it difficult to navigate the fundamental re-structuring going on the in the economy. Jobs, good paying jobs, were disappearing permanently as business downsized and government reinvented itself. Most worrisome, economists, businesspeople, and government leaders had no idea where the new, good jobs would come from. Some talked of high tech and others of bio-technology. Unfortunately the biggest layoffs were taking place in the hi-tech area and job growth due to bio-tech was twenty years down the road. Once again the nature of work in the nation was changing.

State governments soon felt the consequences of the near collapse of the economy. Cutbacks in funding for public higher education became widespread... not just once but many times in a year. In FY93 state governments appropriated less for higher education than they had in the previous fiscal year. Another first in the history of American public higher education.

The reputation of American higher education also took a beating in the 1980's and early 1990's. Leaders of higher education still proclaimed it the finest in the world and pointed with pride to the number of Nobel Prize winners on American faculties. Others pointed to the thousands of international students who came to the nation to study as proof positive of the quality of American higher education. The American public increasingly was not so sanguine. What had begun as a critique of the quality of k-12 public education soon spread to the universities and colleges. After all, who prepared all those teachers in the public schools anyway...the College of Education. Scandals in the spending of government grants by the most prestigious schools added fuel to the fire. Most seriously, legislators, government officials, and university leaders began to question the emphasis placed on research compared to undergraduate teaching.

The new buzzword became accountability. It meant, among other things, that for the first time in a generation the operations and purpose of American higher education were to be subject to intense public and governmental scrutiny. No longer would a blank check, however reduced in size, be written to American higher education. Now they wanted the business plan. What exactly were you trying to accomplish? Better yet, how do you know if you are accomplishing anything of socially redeeming value? Prove it! Prove it! For the first time since World War II American colleges and universities were forced to demonstrate their worth and value to the nation. No longer would a smile, promise, and a handshake suffice.

Most colleges and universities were ill-prepared to meet the demand for accountability. Faculty went into a state of denial. "Academic freedom!" was the cry. Administrators added

to the bureaucracy, as was their custom, by creating an office of accountability or adding these duties to institutional research's already impressive list of tasks.

Accountability was only one of the new chores institutional researchers faced in the 1980's and early 1990's. The benign part of the accountability craze, assessment of student learning often also involved IR. Studies of faculty instructional productivity and non-instructional productivity also ended up on IR's side of the net. New federal and state reporting also enlivened the IR office. Student Right to Know. Athletic Report. High School Report. Transfer Student Report. Our desk runneth over!

These additional challenges for IR were generally not accompanied by additional resources. The institutional research office suffered cuts in its operating budget just like other university units. Travel was cut, purchase of new equipment deferred, and the publications budget was slashed. People paid the price too: no raises, giving back pay, and even reductions in force were altogether too common. It was the worst of times.

It was also the best of times. By 1993 microprocessor technology had advanced to the point that an institutional researcher could have more computing power in the PC on her desktop than the entire DP shop had in its glass box in 1980. PC software became more capable and useful. Spreadsheets, word processors, and database programs were at one's finger tips. Local area networks and client-server technology promised tremendous potential to generate and distribute data and information. IR connected to the larger world through BITNET or Internet. There was even a monthly newsletter for AIR that was distributed electronically.

The practice of institutional research also developed and matured...when the IR person had time away from reporting and accountability to do institutional research. IR offices investigated an increasingly broad and diverse list of topics. Some did planning studies while others could add policy analysis to the office title. Multivariate studies became more common, as did qualitative methods. Others became involved in decision support systems and developing effective information systems.

IR Office Log: March 1999

10:30 Went into the office for the first time in weeks. They finally pulled the plug on the IBM mainframe. The last of the legacy systems, payroll of course, was finally ported to the network. Normally I tele-commute to work but I had to come in to see that old monster unhooked. About to pull the plug myself, nearly forty years in IR. What changes! I tele-commute because the university is trying to keep down ground commuting to comply with anti-pollution laws. Its about the same anyway. My 986 gives me all the power of a Cray - parallel processing and chips with a billion instructions make it possible to do all my work from my glassed-in side porch. Committee meetings? There is always a committee meeting. The interactive conference doesn't make the old bunch any prettier but it is like being in the same room. The president told me he plans to contract out for IR after my retirement. Why not? Who knows I might do a little consulting with whomever gets the contract. As long as it is not this new accountability report the state wants. Reporting how many points of IQ were gained and how many pounds of fat lost by students is going a little too far if you ask me. Memo to me: Do I really want to go the next AIR Forum ... on the moon?

To the Year 2003

The demographic picture for higher education ten years out is very murky. There will be small increases in the 18-24 year cohort starting after 1996 but the numbers will be nothing like the baby boomers. What will the 25-34 age group be doing? This group helped keep enrollments up in the 80's and early 90's; unfortunately their overall numbers will decline by 16 percent in the 90's. Will their participation rate grow? The biggest increase will be in the 35-64 old cohort; they will increase by 20 percent in the 90's. A slight increase in the college-going rate of this group could have a dramatic impact on enrollments: there will be 104 million of them in 2003.

If the first key to the future of higher education is the enrollment rates of those who are beginning to be or who already have a little gray around the ears,the second key is the future participation rates of people of color. If the gap between white and minority enrollment rates closed, colleges and universities would have plenty of students. Those successful in attracting the enrollment of people of color will have to change many facets of campus life. It will require more than establishing a multi-cultural office to attract and keep African-American, Asian, and Hispanic students in the year 2003.

The near future of the American economy is no clearer than the demographic trends. The economy is officially in recovery in 1993 but unemployment remains high as businesses continued to down size. Many concerns have chosen to give overtime or to hire temporary workers instead of hiring new full-time workers as their business improves. Consequently unemployment is lasting twice as long as in the 70's. Re-training for new jobs is made difficult because no one knows what kinds of jobs will be increasing, particularly because the American economy is so dependent on the world-wide economy.

In fact some economists say that the American economy is the captive of the global economy. American businesses and workers compete, not just with each other, but with businesses and workers throughout the world. The workings of the international economy seem to be more powerful in the domestic economy than the national government. The policies of the Federal Reserve and the Department of the Treasury often take a back seat to international currency trading and globe spanning private enterprise that pays little attention to national boundaries.

The shape of the national mood in 2003 can't be projected. The recent presidential election did not send any clear message except "we don't like the way things are now." A president elected by only 43 percent of the popular vote does not have enough political clout to keep his own party on board when votes on important issues come before the Congress. The political opposition is simply against the administration no matter how contorted their position becomes. Leaders of business, labor, and higher education are consumed by their problems and can find no time to try to lead the nation forward. The public opinion polls reflect this indecision; most American institutions are at their lowest point of public approval.

All of these uncertainties, the age, size and composition of the student body, continued corporate downsizing and loss of jobs requiring college education, the globalization of the economy, and the lack of confidence of the American people in themselves and their leaders suggest that American higher education faces turbulent times. Change is the theme for higher ed over the next decade. In reality change is inevitable, especially in higher education. Not

inevitable is the degree to which change can be good or bad for higher education. Those of us in higher ed can have a lot to say about how the change turns out. If the right decisions are made, if the proper energy is devoted to the task, colleges and universities can emerge stronger—if different—from this period of change.

What will higher education be like in 2003? I think there will be fewer institutions of higher education. First, because of lower enrollments, and second, because the customers of higher education may look to other places to get the kind of education they want. Many colleges will simply close, while others will be merged out of existence. Particularly vulnerable, I think, will be small private liberal arts colleges with inadequate endowments. There will fewer of the 18-24 aged students who want the all-encompassing residential experience these schools specialize in. I also think that the large public and private research institutions will be reduced in scope and mission. Today even the flagship institutions are realizing that they can't be everything to everyone: the resources simply won't be there. All universities and colleges will have to pare down to what they can do best and everything else will have to go by the board. All colleges and universities will be doing less and with fewer resources, but they will be doing it better.

Colleges and universities will also reexamine the balance between teaching and research on their campuses. One reason is that funded or sponsored research is drying up. Government spending on research is in decline and competition for what remains is fierce. The federal government is particularly cutting back: if the Super Conducting Super Collider is dead, can Space Station Freedom be far behind? It could be the end of so-called "Big Science". Industrial-sponsored research is targeted to product development that will fatten the bottom line. Research conducted without external support, departmental research, will undergo sharp reduction as students and legislators demand that faculty spend more time teaching and less time doing research.

Colleges and universities will also have to be more flexible in the delivery of instruction if they are to prosper in the decade ahead. The fifteen-week, three-hours-a-week class schedule will have to change. Flexible time and place learning will become more widespread. The older, part-time, working students who are the new majority undergraduates are going to demand that education be delivered to them when they want it and where they want it. It might be distance education, it might be more off-campus classes or it might be instruction in the home over interactive video, but there will be wider variety in the ways that learning takes place.

Community colleges in Maryland once again are blazing a new trail in higher education. Historically community colleges have been the most flexible segment of higher education. They already are well experienced in meeting the needs of older, part-time, and minority students. They use a wide variety of scheduling options and the latest delivery systems for their students. There is much their four-year cousins could learn from the community colleges.

It is not too hard to imagine that a new model for four-year schools in the year 2003 will be one that emphasizes the convenience of the student over that of the faculty and the administration. In fact I think we may have a forerunner of this new institution already in place in Maryland: University College. With University College the classroom is anywhere students are located. Faculty are adjuncts who contract each semester for their services. There is a small core of administrators and specialists in delivering instruction. And University College is totally self-supporting. That may be the real herald of things to come...self-supporting.

I think some institutions will carry the University College model a couple steps forward and become the Virtual University. The Virtual University will deliver instruction anywhere at anytime for however long or short a period as dictated by the needs of the learners and their ability to pay. It may have only one or two permanent employees, all others will contract with ole VU to deliver services. Faculty will teach or do research according to what the university's customers want and can pay for. Even institutional research might be contracted out; maybe the firm of Jones, Smith, and Blarney will do IR for several virtual universities. IR will still be needed because, virtual or not, the university will still be held accountable by federal and state government, even if no federal or state funds change hands. The day of consumer protection in higher education is at hand.

Technological change will make the Virtual University possible if not altogether likely. The marriage of Bell Atlantic and the nation's largest cable TV company foreshadows what could happen. Either through compressed video or rewiring the nation with fiber optic cable it will soon be possible to deliver hundreds of channels of interactive television. Certainly one could hope that one or two channels would be used to deliver ole VU's instructional programs. Interactive video and Artificial Intelligence to guide learning would not replace face-to-face teaching and learning, but it would be one heck of a supplement. For those who desire human contact there will be a spring break in Florida.

What does this mean for institutional research? It depends. It depends on what course of action your institution takes. For IR people at schools who ignore change and continue with business as usual...look somewhere else for employment. An institutional researcher with a future in higher education will try to shape the course her or his school takes. There will still be private liberal arts colleges, flagship research institutions, community colleges, and comprehensive universities. There might even be a Virtual University or two. The profession must be ready to lead higher education in the turbulent times ahead . Colleges and universities will have to become learning organizations, not just teaching, research, and service institutions. Colleges and universities must truly become organizations that reinvent themselves , that respond to the ever-changing world around them, while maintaining the integrity of the institutional mission. The role of institutional research in the learning institution is to be out front, gathering the data, molding it into information that decision makers can use even when they don't know they need it yet. We must still be information professionals. Our tools will have to get better every year. We will have to make the best use of technology as it continues to evolve. We must have the will and the intelligence to help our institutions make the right decisions. May you be among those who do so.

Information and the Continuous Improvement of Enrollment Management

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Introduction

Academic planning, budget planning, facilities planning—all require assumptions about student enrollment. To whatever extent an institution can manage its enrollment, thus making it more predictable, the efficacy of planning improves. A college or university that can enroll and retain a student body of desired size and composition in all likelihood will enhance its effectiveness. Increasing demographic and economic diversity among current and prospective students elevates both the importance of and the challenge to enrollment management. Institutions with effective enrollment management teams and strategies meet this challenge by ensuring a better fit between the students they enroll and their campus mission and culture, increasing both student and institutional success.

Enrollment management can be defined as a coordinated effort to influence the size and characteristics of an institution's student body, through marketing, recruitment, admissions, pricing, financial aid, advising, and other policy choices. An active enrollment management program, with specific targets and well-grounded strategies to achieve them, will be fully integrated into an institution's planning process. This is in contrast to more passive planning that relies on mathematical projection techniques for forecasting rather than managing enrollment.

Some are skeptical of an institution's ability to influence its enrollment in any substantial way. Constrained by mission, resources, geography, competitive position, and tradition, some see their institution as largely unable to attract and retain the number and type of students they might desire. Instead, they perceive their campus as having an established market largely impervious to marketing or other strategies. In contrast to such skeptics, we believe it is possible to influence enrollment in desired ways through the appropriate policy choices. But an essential ingredient is timely, focused information. As Claffey and Hossler (1986, p. 106) have argued,

> Planning and evaluation are at the heart of an enrollment management system, but the single most critical element in all of this effort is accurate, timely, usable information. Thus, our ability to influence our enrollments to any degree is a direct function of the information...available.

This article presents a conceptual framework for organizing the information necessary to support a successful enrollment management program. First, establishment of an initial information infrastructure is described. Then a continuous monitoring, evaluation, and improvement cycle is proposed. Three examples of the model as applied at a selective liberal arts college and a comprehensive community college are described. The article concludes with a summary of the approach and its benefits.

Establishing the Information Infrastructure

Successful enrollment management depends on an adequate information base. Two types of information are needed: performance monitoring indicators and in-depth policy research and analysis. Both types are needed for all six stages of a student's involvement with an institution: from initial inquiry through application, enrollment, persistence, completion, and alumni activities (see Figure 1). Establishing the initial information infrastructure to support enrollment management requires five steps (Clagett and Kerr, 1993b): (1) review the literature on college choice, student-institution fit, and student retention; (2) construct longitudinal cohort tracking files; (3) develop a performance monitoring indicator system; (4) identify patterns in aggregate student behavior; and (5) conduct survey and focus group research to better understand student decisionmaking. Two examples from the literature provide especially informative discussions concerning the establishment of an information base for enrollment management. Glover (1986) describes several analytical projects that undergird an enrollment management decision-support system; Davis-Van Atta and Carrier (1986) stress that the information needed at each stage can be best analyzed in terms of understanding student decision processes.

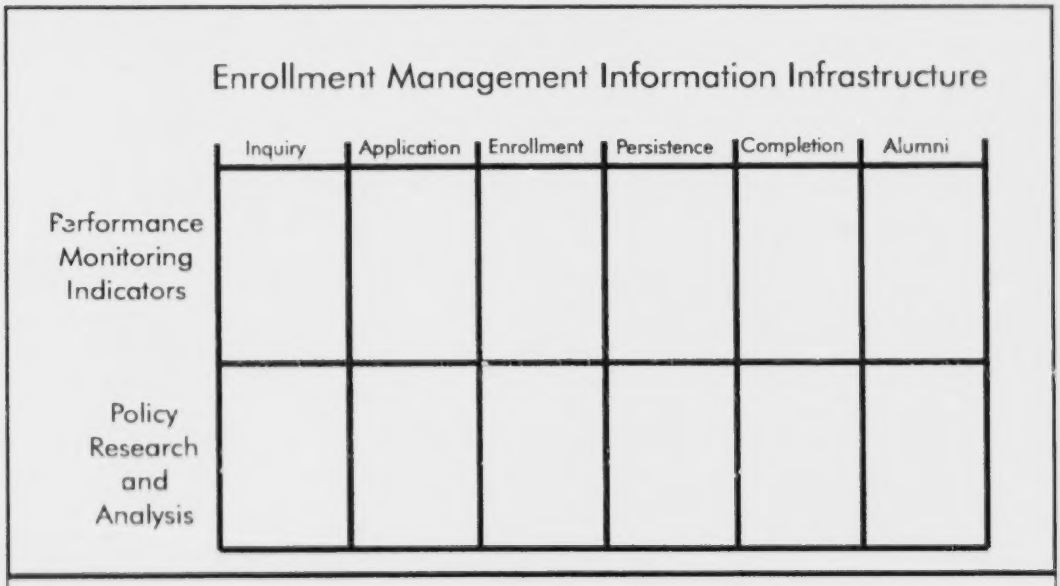


Figure 1

Upon conclusion of the five-step process, an institution will be in a position to launch an enrollment management program grounded in relevant local information and with established benchmarks for monitoring its effectiveness. Two key components, tracking systems and performance indicators, will be briefly discussed in the following sections.

Longitudinal Student Tracking System

Since enrollment management encompasses student experiences with an institution from inquiry to post-graduation, data systems paralleling this student flow are most useful. In place of discrete files established for other purposes, most institutions will benefit from construction of separate longitudinal cohort tracking files (Ewell, Parker, and Jones, 1988). Free-standing tracking files for selected entering cohorts of students preserve key data values and facilitate data analysis. The data elements comprising these files will include student attributes at entry (typically collected as part of the application process), student progress variables updated each term (for example, credits attempted and earned), and follow-up indicators such as employment and subsequent education (transfer or graduate school attendance). It is usually sufficient to track cohorts entering every third fall, though if major changes in policy or mission are occurring an institution might want to track successive cohorts. Summer or spring entering cohorts warrant tracking only if substantial in number and notably different in characteristics from fall students (Clagett, 1992).

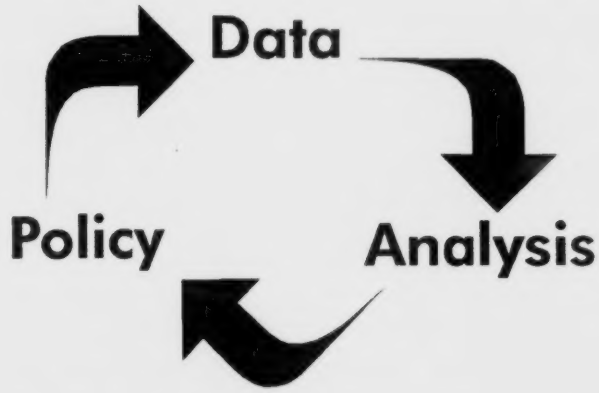
Performance Monitoring Indicators

Performance monitoring indicators, or PMIs, are needed for each stage of student contact with the institution. Developed by consultation and negotiation among all offices with enrollment management responsibilities, the PMIs serve both planning and evaluation roles. Typically simple counts or ratios that describe student status at a particular point in time, the indicators are used by the enrollment manager to evaluate the performance of each unit as well as to oversee the broader institutional enrollment picture. Such sets of critical success factors or key success indices (Sapp, 1994) are essential for the continuous improvement of enrollment strategies. Dolence, et al. (1987-88) and Clagett (1992) provide lists of suggested indicators for each stage of recruitment, retention, and post-enrollment involvement with an institution. Typical examples for recruitment would be the number of applications received, number of acceptances, and enrollment yield. For retention, persistence rates to the sophomore, junior, and senior year, and graduation rates for various student subgroups would be included. Post-graduate PMIs might include alumni giving as well as employment and advanced degree attainment. (For an example of a complete set of performance monitoring indicators for enrollment management at a community college, see the appendix.)

In addition to identifying the indicators, benchmarks or targets should be established for each. These may simply be last year's figures, or forecasts based on formal modeling or professional judgment. They may be targets based on peer institutions or system averages. Or they may be explicit goals, reflecting the vision and aspirations of the institution. Whatever their genesis, the benchmarks or targets are the standards against which actual indicator values are judged.

The D-A-P Cycle for Continuous Improvement

Once an established information infrastructure is in place and initial policies implemented, the focus shifts to monitoring, evaluating, and improving enrollment management policies. The performance of the enrollment management plan is routinely monitored through the systematic updating of the PMIs explicitly developed for this purpose. The PMIs constitute the primary *data* used for keeping track of the success of existing policies. They are supplemented by insights derived from formal environmental scanning processes, and from informal feedback from students, faculty, staff, and others. These data will indicate where the enrollment reality is diverging from that desired, prompting in-depth *analysis*. The analysis stage is critical; this is where a fuller understanding of what is really going on is gained. Analysis will reveal if the situation described by the PMIs is acceptable or problematical. It is at the analysis stage that potential improvements are often identified, which may result in suggested *policy* revisions. The results of changed policies will be monitored in subsequent PMI reviews, in a continuous *data-analysis-policy* or *D-A-P cycle* (see Figure 2).



The D-A-P Continuous Improvement Cycle

Figure 2

Continuous Improvement: Three Examples

To illustrate application of the D-A-P cycle, three examples of enrollment management policy analysis and revision are described in this section. (Four different examples can be found in Clagett and Kerr, 1993a.) The first example, involving the use of institutional financial aid in a selective admissions environment, is a "classic" enrollment management problem at liberal arts colleges. The following two examples illustrate the wide applicability of the framework, focussing on minority student retention and continuing education recruitment at a large, open-admissions community college.

Financial Aid Impact on Yield and Revenue

Balancing the enrollment, tuition, and financial aid goals of an institution continues to be a concern for presidents (Johnson and Meyerson, 1993) and a substantial challenge to enrollment management. For a small liberal arts college, with an enrollment of less than 900 students, achieving the delicate balance between these sometimes conflicting goals became critical. The interrelationship between student enrollments, financial aid, and tuition revenues was not fully appreciated until the institution started experiencing unfavorable admissions statistics and an over-expenditure on financial aid. Once this interrelationship was recognized by looking at net tuition revenue (NTR) and net tuition revenue per student, the job of balancing these factors to meet institutional goals began.

For purposes of this analysis, net tuition revenue was defined as the tuition revenues from undergraduate students less institutionally-funded financial aid. This definition of net tuition revenue recognized institutionally-funded financial aid as a discount on the stated tuition price and did not consider auxiliary budgets since they are stand-alone operations providing needed services to the student body (Hubbell, 1991).

Data. Admissions trends at the college were tracked throughout the freshman admissions process and reported in final form during the fall. Freshmen and transfer student acceptance and enrollment rates were maintained by gender and race, and more recently, by financial aid awards. In addition to monitoring admissions data, the college recently began closely monitoring financial aid expenditures and the impact of these expenditures on the net tuition revenue for the institution. From 1984 through 1991, the acceptance rate of freshmen was continually increasing while the enrollment yield was declining. In 1992, the college went substantially over budget in financial aid; this action had a positive impact on yield but a negative impact on revenue. As a result, the college tried to correct the problem by packaging student aid with more loans and by scaling back on institutional financial aid, even before reaching enrollment goals. After several unsuccessful attempts at achieving an acceptable balance between enrollment, financial aid, and tuition revenues, management came to the conclusion that they needed to develop a better approach which would enable the office of enrollment management to achieve both the enrollment and net tuition revenue goals of the institution.

Analysis. Prior research (St. John, 1990) suggested that "discount pricing could be expected to keep enrollments higher than projected, if in fact students were more responsive to changes in grant aid than to changes in tuition". The long-standing belief of admissions and financial aid officers that aid offers virtually determine students' inter-college choices further supported the college's efforts to find an effective way to allocate institutional grants and scholarships.

Before formulating a policy with regard to financial aid, the college first had to understand the current profile of entering freshmen. Since the focus of discussions leading up to the analysis centered on net tuition revenue (NTR), the analysis was initiated by developing a distribution of freshmen within a range of net tuition revenues (see Table 1). In addition to net tuition revenues, yield by NTR range was considered as well as two academic indicators: SAT scores and high school grade point average (GPA). The analysis revealed that the highest yield occurred at the lowest NTR levels and the lowest yield occurred at the highest NTR levels. In addition, the students with the lower academic qualifications were at the higher

NTR levels. Not surprisingly, the full pay students had the lowest yield and the lowest academic qualifications in the distribution.

Distribution of 1993 Freshmen by Net Tuition

NTR Range	Students	Yield	SAT	GPA	Revenue
0 - 1,999	16	55%	1199	3.72	$5,248
2,000 - 3,999	20	51%	1143	3.62	67,083
4,000 - 5,999	32	39%	995	3.23	167,885
6,000 - 7,999	48	34%	1021	3.56	337,909
8,000 - 9,999	16	24%	1046	3.28	146,495
10,000 - 11,999	7	18%	911	3.10	73,512
12,000 - 13,952	5	23%	980	2.93	64,354
Full pays	70	13%	919	2.49	976,640
Total	214	23%	1005	3.12	$1,839,126

Table 1

Once the current profile of freshmen was established, a forecasting model was developed to determine where the college needed to be in order to meet its enrollment and net tuition revenue goals (see Table 2). Since "responsiveness to changes in tuition charges and aid amounts are most likely to have an impact in the final stage of the college-choice process" (St. John, 1990), the conclusion was that the college choice decision could be influenced if the college determined an effective method of allocating grants and scholarships (Chapman, 1979). Since one of the goals of enrollment management was to meet a NTR goal, the focus of the analysis was on the highest three ranges of the model. In addition, since aid increases the likelihood that an applicant will enroll (Jackson, 1988; St. John and Noell, 1989) and since applicants are more responsive to changes in grant awards (Blakemore and Low, 1983; St. John, 1990), increasing institutional grant awards seemed to be the most effective way to increase yield and, therefore, enrollment.

In order to maintain yield at the four lowest NTR ranges, awards for students at these levels were increased by slightly less than the overall tuition increase. Average awards at the higher NTR levels were increased by more than the overall tuition increase and, in some cases, the awards were increased by substantially more than the awards made in the previous year. The increases in these average awards were expected to impact yield by at least 10 percent, bringing yield at the higher net tuition revenue levels up to approximately 33 percent. Yield for the full pay students was expected to remain the same; however, grant awards would be offered to some of these students thereby increasing yield in the $12,000-15,277 NTR range. These increases in average institutional grant awards to students and the subsequent increase in enrollment yield were expected to enable the college to meet the enrollment and net tuition revenue targets needed in order to balance the budget.

Net Tuition Revenue Forecasting Model

NTR Range	Average Award	Yield	Offers	Enrolled	Revenue
0 - 1,999	$14,624	55%	29	16	$10,415
2,000 - 3,999	11,598	51%	39	20	73,178
4,000 - 5,999	9,706	39%	82	32	178,174
6,000 - 7,999	8,237	36%	142	51	359,885
8,000 - 9,999	6,200	34%	67	23	206,774
10,000 - 11,999	4,796	28%	38	11	111,518
12,000 - 15,277	2,300	33%	100	33	428,241
Full pays	0	13%	460	60	913,565
Total				245	$2,281,750

Table 2

Policy. Increasing average grant awards required that the college adopt policies that directed institutional financial aid funds toward the desired goals. As a result, two grant award programs were instituted. The Achievement Award Program was an award program based on academic credentials, and the Institutional Room Grant Award was an award program that essentially replaced financial aid otherwise received in the form of loans.

The average Achievement Award would be approximately $4,600; the awards would range from $3,500 to $6,000. These awards would be offered to approximately 200 applicants with a predicted freshmen GPA of between 2.5 and 3.0, and participation in at least two extra-curricular activities. The modest academic criteria were consistent with the findings of Trusheim and Gana (1994) that "enrollment probabilities are improved more for merit award recipients at less competitive SAT ranges." The goal was to enroll about one-third (70) of these students.

The second award program instituted was the Institutional Room Grant Award Program. Room charges were approximately $2,300; consequently, this amount was determined to be the amount of the Room Grant Awards. Approximately 230 freshmen would be offered this award and about 100 were expected to enroll with these awards. Miller found that "loans offered instead of grants repel admitted applicants" (Miller, 1981); therefore, this program was expected to have a higher yield rate since these students would not typically be eligible for other types of grant award programs.

With these two new institutional grant award programs in place, the college hoped to achieve its enrollment and net tuition revenue goals in order to help return the institution to financial stability. This analysis also enabled management to have a clearer understanding of the complex relationship between enrollment, tuition, and financial aid.

Minority Student Retention

Prince George's Community College, a large, comprehensive, open-admissions two-year college in the Maryland suburbs of Washington, D.C., has experienced a rapid change in the racial composition of its student body. Like the county it serves, its student population has gone from less than 15 percent minority in 1970 to two-thirds minority presently. African-Americans accounted for nine out of ten minority students at the college. The college's faculty and staff, due to low turnover and funding constraints on new hires, had changed much more slowly. Minorities currently constitute 35 percent of the full-time staff, and 20 percent of the full-time teaching faculty.

Data. Most performance monitoring indicators for student achievement at the community college include breakouts by racial/ethnic category. These consistently revealed African-American performance significantly below that of white students. For example, African-American graduation and transfer rates had been less than half those of whites, and the percentage of African-Americans earning passing course grades each term had been six to ten percentage points below that of white students. Placement testing in English, reading, and mathematics revealed that four out of five African-American students entering the college each fall needed remediation in at least one area. Dissemination of these PMIs focussed the administration's concerns about minority student performance at the college. In addition, the Maryland Higher Education Commission had identified minority achievement as a statewide priority, and annually requires all public colleges to submit *Minority Achievement Reports* analyzing a number of minority student progress variables.

Analysis. Several analyses were undertaken to learn more about African-American student progress. An initial study employed the college's custom lifestyle cluster, geo-demographic analysis system *PG-TRAK*. Similar to national cluster systems employed in corporate America, PG-TRAK identifies a set of neighborhood types or clusters based on statistical analysis of Census and other data at the tract level. By developing a custom system internally, the college avoided large licensing fees and created a typology based solely on the local data, with an emphasis on variables especially pertinent to educational planning. The clusters or neighborhood types vary in socio-economic status, ethnic composition, type of housing, family life cycle, and other ways. Residents of these neighborhoods have different lifestyles, aspirations, and educational needs. By geo-coding student address lists—identifying which tract and thus in which cluster each student resides—the college gained a powerful new variable for interpreting student performance. For example, student outcomes, in terms of graduation and transfer rates, were analyzed by cluster. The three largest primarily African-American clusters had substantially different outcome patterns. The upscale "Enterprise" cluster, had below average graduation rates but transfer rates a third higher than the college average. The predominantly blue collar African-American cluster had graduation and transfer rates near the college average. The relatively poor "Downtown PG" cluster had graduation and transfer rates considerably below average. The analysis confirmed the heterogeneity of the African-American student body, and suggested that performance was related to socio-economic factors.

Next, the research office initiated a series of longitudinal studies based on cohort tracking files. Given the large proportion of African-American students needing remediation, a major focus was on student enrollment and completion in developmental courses. A study of Fall

1990 entrants identified as needing remediation found that three in ten had not enrolled in an appropriate developmental course as of the end of the Spring 1992 semester. Avoidance of remediation was most prevalent among students needing developmental reading. Only 61 percent of the 872 students needing remediation had taken developmental reading within two years of entering the college. Just over half of those, or only a third of the total identified as needing remediation at entry, had successfully completed remediation in reading. Only nine percent of the 933 students identified as needing developmental math at entry had completed remediation and were eligible for a credit math class within two years (see Table 3). A fourth of those identified as needing math remediation had test scores indicating initial placement in a basic arithmetic course.

Developmental Needs, Coursetaking, and Completion
Fall 1990 Entrants as of the End of Spring 1992

	READING		ENGLISH		MATH	
	Students	Percent	Students	Percent	Students	Percent
Developmental needed	872	100%	832	100%	933	100%
Developmental taken	535	61%	572	69%	608	65%
Developmental completed	292	33%	220	26%	86	9%

"Developmental completed" means earning a developmental course grade satisfying the prerequisite of introductory credit courses meeting the College's general education requirements in each area. A student may complete a developmental course but not be counted as "developmental completed" if further developmental coursework is needed.

Table 3

Following national literature that suggested that social integration was a key factor in persistence in college, the research office designed and conducted a comprehensive campus racial climate study. Detailed written surveys of faculty, staff, and students were supplemented by several focus groups. The major findings presented a mixed picture. When asked to rate campus race relations overall, nine in ten in each group gave positive ratings. Overwhelmingly, respondents said that people got along, that diversity was a college strength, and that the institution was committed to fairness. Opinion was split, however, over two major issues: affirmative action in employment, and multicultural education initiatives. African-American respondents were much more likely to support both than white respondents. Of particular interest, given the institution's evolution into a campus with a majority white faculty teaching a majority African-American student body, was how each group in this relationship per-

ceived the nature of their relationship. The survey found seven in ten white faculty saying their relations with minority students were good. Only four in ten minority students agreed. Finally, one third of the student respondents said they had been the subject of a racial incident on campus. African-American students were most likely to assert that they had been discriminated against in the classroom, while white students more typically cited incidents involving other students outside the classroom.

Policy. The analyses and subsequent discussions led to several major policy decisions at the community college. Several successful student support services, such as mentoring and tutoring programs, had been developed and funded using grants. The administration decided to continue funding these programs on the operating budget as grant monies expired, a significant resource allocation given the tight fiscal situation. The findings concerning developmental coursetaking led to a new policy that mandated completion of remediation prior to attempting more than 12 credits. The low pass rates in developmental courses led to enforcement of a 30-hour laboratory requirement in each course. Students would be required to spend an average of two hours weekly in the developmental learning lab. To further enhance remedial instruction, the college hired two additional full-time faculty and six new laboratory assistants to help students fulfill the new 30-hour lab requirement. The campus climate study findings influenced policy as well. A new three-credit cultural diversity graduation requirement was instituted. All candidates for associate degrees must complete a three-credit course exploring other cultures from an approved list. A graduate-level, full-semester seminar on "Understanding Cultural Pluralism" was designed and offered to college faculty and staff. Finally, following up on a successful eight-month-long lecture and performance series, the college established an annual "Bluebird Blues Festival" celebrating this uniquely American art form. The inaugural festival had brought together campus students and staff from all races in a successful, enjoyable day. The college hoped the good feelings of the first festival will carry forward into an annual event anticipated campuswide.

Continuing Education Recruitment

Enrollment management should not be restricted to degree-credit programs, particularly at institutions with substantial continuing education operations. At Prince George's Community College, in any given year as many students enroll in noncredit courses as attend credit classes. Noncredit, continuing education offerings have recently accounted for 30 percent of total full-time-equivalent enrollment. In addition, noncredit FTEs are paid at the same rate as credit FTEs in Maryland's community college funding formula. As a result, continuing education has been included in the college's enrollment management from the start.

Data. The PMIs for continuing education at PGCC include tracking course enrollments and state-aid-eligible FTEs bi-weekly for open enrollment courses, contract training (apprenticeship, government employment training, and private sector), and special populations such as senior citizens, talented and gifted youth, and a children's developmental clinic. Registrations and FTEs in open enrollment courses fell in fiscal year 1991. This decline, combined with an announcement by the state that it would no longer subsidize apprenticeship education, prompted continuing education administrators to review the marketing of open enrollment courses. Existing policy was to mail a complete noncredit class schedule to every household in the county three times a year.

Analysis. Continuing education officials asked the institutional research office to utilize its geo-demographic, lifestyle cluster analysis system **PG-TRAK** to examine open enrollment course registrations data to explore the possibility of neighborhood-targeted direct mail promotion. The analysis involved three steps (Boughan, 1991). First, continuing education enrollment penetration (the ratio of number of students per population residing in each cluster) was calculated, identifying clusters providing disproportionately more or fewer noncredit enrollments per population. The results were compared to penetration analyses done previously for credit courses, revealing a broad similarity but also some notable differences. Among the latter were clusters with large concentrations of elderly citizens who were much more likely to have enrolled in noncredit classes than credit classes. Similarly, residents of "Sophisticate Mix," characterized by highly educated, childless professionals, exhibited little interest in PGCC credit classes but did partake of noncredit offerings. In contrast, residents of "Fort George," a cluster dominated by a military base, were active in credit classes but were least likely among all 24 clusters to enroll in noncredit courses. In short, the first analysis identified the areas in the county that provided the most noncredit students, and the areas where noncredit courses were notably more popular than credit courses.

The next analysis attempted to reduce the massive set of noncredit enrollment data into manageable proportions. During the five years under study, the continuing education division offered over 2,000 different courses in 37 different interest areas. These offerings generated over 63,000 individual course registrations. How could the college make sense of this complex data set? The research office decided to employ factor analysis. Were there patterns in student enrollment behavior such that students grouped themselves into consumers of relatively distinct groupings of courses? If a student enrolled in one type of class (e.g., computer software training) were they also likely to enroll in another (television production)? A yes answer, and identification of such "product themes" among course enrollment behavior, would have obvious marketing implications (see Table 4). The factor analysis revealed seven course themes: *career exploration* (career planning courses plus management, job skills), *entrepreneurship* (small business, financial planning, communications skills), *high technology* (computer software, television production), *trades and crafts* (automotives, carpentry,

Factor Analysis of Continuing Education Course Enrollments

Theme	Typical Courses
Career Exploration	Career planning, management, assorted job skills
Entrepreneurship	Small business, financial planning, communications skills
High Technology	Computer software, television production
Trades and Crafts	Automotives, carpentry, police work
Home and Office	Family and health issues, secretarial skills
Creative Impulse	Photography, writing, "New Age" hobbies
Lifestyle	Fashion, cooking, travel, languages

Table 4

police work), *home and office* (family and health issues, secretarial skills), *creative impulse* (photography, creative writing, "New Age" hobbies), and *lifestyle* (fashion, gourmet cooking, travel, foreign languages).

The third and final analysis related course enrollment behavior (in terms of product themes) to neighborhood (cluster) of residence. In other words, how did residents of the 24 clusters respond to the seven course themes? Fortunately, the clusters were easily grouped into eight "cluster blocks" due to similarities in coursetaking, so the analysis could be reduced to a matrix relating the eight cluster blocks to the seven product themes (see Table 5). To facilitate interpretation, index scores were calculated. Scores above 100 indicated that residents of the cluster were more likely than average to enroll in courses in the product theme grouping. Scores below 100 indicated below-average enrollment rates.

Policy. As a result of the cluster and factor analyses, the continuing education office decided to conduct a pilot test of a cluster-targeted direct mail campaign. The test case was a vocational center located at a county high school. For three years, the college had offered evening classes in automotives, printing, electronics, locksmithing, and similar trades, using the high school's state-of-the-art vocational education shops, but with disappointing results. Enrollment had remained below expectations, given the quality of the facilities and the center's location in a densely-populated, blue-collar area suffering from above-average unemployment. Officials hypothesized that the low enrollment was due to the community's lack of awareness of the center and its offerings. Based on a cluster analysis of past enrollment at the center, a targeted mailing to 5,000 households was conducted. A brochure describing the center and its offerings was mailed to 4,000 households in clusters that had historically provided a disproportionate share of the center's enrollment. The remaining 1,000 brochures were mailed randomly to serve as a control group. The campaign brought in 22 students above what would have been expected without the separate mailing. This modest improvement reflected poor targeting, as subsequent analysis of the return from the control group

Cluster Analysis of PGCC's Non-Credit Market

	Course Theme						
Cluster Block	Explore Career	Entre-preneur	High Tech	Trade/ Crafts	Home/ Office	Creative	Life Style
Country Club	95	127	92	88	81	110	169
Sophisticate Mix	76	98	142	48	44	213	89
White Bread 'Burbs	106	100	95	103	89	101	119
Middle America	115	82	97	132	105	110	84
Rural Blues	154	151	68	87	68	95	50
Emerging Minorities	79	108	108	79	107	77	72
Minority Blues	94	88	128	117	137	64	55
Fort George	74	23	63	77	175	83	56

Table 5

revealed. Selection of different clusters for targeting might have provided more response rate "lift." The lesson learned was that enrollment history may not be the best guide for contact selection. In addition to this pilot direct mail campaign, the analysis led to repackaging of courses in subsequent continuing education publications under the product themes identified by the factor analysis. Finally, consideration was given to suspending the county-wide mailing of the class schedule. Instead, the schedule would be mailed to selected clusters and the money saved used for future targeted promotions.

Conclusion

Institutional planning and rational management require assumptions about enrollment magnitude and characteristics. Whether planning new academic programs, estimating adjunct faculty needs, projecting dormitory utilization, building a budget—almost all planning in higher education requires enrollment forecasts. In turbulent times, when seemingly the only constant is change, making such assumptions can be difficult. As student bodies become more ethnically, culturally, and economically diverse, student needs multiply and institutions may find both recruitment and retention increasingly challenging tasks. Effective enrollment management can introduce some stability and predictability into the planning context, with the promise of increased efficiency and effectiveness in meeting both student and institutional goals.

Successful enrollment management depends on an information base that is comprehensive, targeted, and continuously updated, to inform enrollment management policies and to monitor their effectiveness. Institutions implementing enrollment management programs need to establish an initial information infrastructure, including a longitudinal student tracking system and a set of performance monitoring indicators (PMIs) covering each stage of student involvement with the institution. These internal monitoring mechanisms should be supplemented by a periodic, formal environmental scanning process. The PMIs, environmental scanning insights, and informal feedback from students, faculty, and staff constitute the data for continuous evaluation of the enrollment management program. These data will identify areas in need of further analysis; for example, a PMI may show an undesired trend or failure to meet a target, or the scan may reveal a changed governmental policy or socioeconomic shift with implications for the institution's enrollment outlook. Detailed analyses may suggest policy revisions. The impact of the revised policies will be monitored by subsequent PMI compilations, in a continuous improvement cycle. Adopted in its entirety, our approach:

1. Establishes a comprehensive framework for studying student-college interaction from initial inquiry onward.
2. Encourages development of enrollment targets, performance monitoring systems, and longitudinal tracking files.
3. Identifies areas of student behavior where institutional understanding is weak.
4. Integrates institutional research into enrollment management policy formation.
5. Promotes continuous improvement through the data-analysis-policy (D-A-P) cycle.

Appendix

PRINCE GEORGE'S COMMUNITY COLLEGE
Enrollment Management Performance Monitoring Indicators

	Indicator	Description	Source
		INQUIRY	
1	HS Intent	Number and percent of high school seniors indicating intent to attend PGCC	Recruitment Office survey of county high school seniors
2	Catalogs	Number of catalogs mailed during fall application period	Admissions Office
3	SAT Reports	Number and score distribution of SAT scores received	College Board student score report summary
4	C/CF Inquiries	Written requests for PGCC information completed at College/Career Fair	Office of Recruitment
		APPLICATION	
5	Special Test	Number of students participating in PGCC Special Testing and Advising Program	Testing Office
6	Applications	Number of applications for fall admission received	Admissions Office
7	Yield	Number and percent of applicants enrolling; by race/ethnicity	Information Systems report SAB 012
		ENROLLMENT	
8	**Headcount**	Credit student headcount (third week)	Third week freeze file
9	**Credit Hours**	Total student credit hours (third week)	Third week freeze file
10	**FTE**	Full-time-equivalent enrollment eligible for state funding	Registrar

11	**Average Load**	Mean student credit hour load	Third week freeze file
12	Load Distribution	Number of students by credit hours attempted	Third week freeze file
13	**FT/PT**	Number of full-time and part-time students	Third week freeze file
14	**Demographics**	Headcount distribution by age, race/ethnicity, sex, residence	Third week freeze file
15	First-time	Number of first-time college students attending; by FT/PT, race/ethnicity	Third week freeze file
16	High School	Number and percent of current-year graduates of county high schools enrolled; by high school	Third week freeze file; county school system
17	**Remedial Need**	Number and percent of entering students needing remediation; by basic skills area, by race/ethnicity	Third week freeze file
18	Admission status	Number of first-time students, readmits, new transfers from other colleges, and students continuing from prior term	Third week freeze file
19	Internationals	Number of international students on temporary visas; by country of origin, FT/PT, age, program, race/ethnicity, sex.	Third week freeze file
20	Schedule	Enrollment by class location, day, and time; headcount, credit hours, contact hours	Third week freeze file; ICLM-DECR/DECO
21	**Program**	Headcount enrollment by program/curriculum choice	Third week freeze file
22	Program hours	Credit hours generated by curriculum majors	ICLM-RGCR
23	Discipline hours	Credit hour distribution by discipline	Information Systems report SIBR030-UCA
24	Sections	Course sections offered and made; by discipline, location, day and time	Office of Instruction

25	FT/PT Faculty	Proportion of equated credit hours taught by full- and part-time faculty	Office of Instruction
26	Class size	Average class size; by discipline	Office of Instruction
27	**Charges**	Student tuition and required fees; per credit hour, for full-time load	Finance Office
28	Financial aid	Number of students receiving financial aid; by source, average award	Financial Aid Office
29	Market share	Proportion of county residents attending Maryland colleges and universities enrolled at PGCC; by FT/PT/first-time FT	MHEC Enrollment by Residence report
30	High school share	Proportion of current-year county high school graduates attending Maryland colleges and universities enrolled at PGCC; by race/ethnicity	MHEC SOAR High School Graduate System
31	PG-TRAK	Enrollment by PG-TRAK neighborhood cluster	OIRA PG-TRAK lifestyle cluster system
		PERSISTENCE	
32	Second term retention	Fall-to-spring retention of new students; by race/ethnicity	EOS and third week files
33	**Developmental progress**	Number and percent of students needing remediation taking developmental courses and completing remediation; by basic skills area	OIRA cohort files
34	**Course pass rates**	Percentage of initial enrollees passing courses; by discipline, age, first-time/continuing status, race/ethnicity, sex	Information Systems report SIBR032
35	**Term attendance**	Number and percent of fall entrants enrolled in subsequent terms	OIRA cohort files
36	**Cumulative credits**	Cumulative credits earned by fall entering cohort; by credit range, by term	OIRA cohort files

37	Probation	Number and percent of students on academic probation	Third week freeze file
38	Support services	Number and percent of students receiving academic support services; by service	Student support service supervisors
39	Activities	Number and percent of students participating in student activities; by type of activity, age, race/ethnicity, sex	College Activities Office
40	Satisfaction	Likert scale means of student satisfaction with college programs and services	OIRA current student surveys
		COMPLETION	
41	**Outcomes**	Number and percent of students graduating and transferring, transferring without award, graduating but not transferring, achieving sophomore status in good standing, still enrolled, with special short-term motives, and exiting without earning 30 credits with a 2.0 GPA or transferring; by race/ethnicity	OIRA cohort files
42	**FT graduation rate**	Percent of full-time degree-seeking students earning an Associate degree in four years; by race/ethnicity	MHEC EIS/DIS longitudinal analysis
43	**FT MD transfer rate**	Percent of full-time degree-seeking students transferring to a Maryland senior institution within four years of PGCC entry; by race/ethnicity	MHEC EIS longitudinal analysis
44	Success rate	Percent of degree-seeking students graduating and/or transferring; by race/ethnicity	OIRA cohort files
45	Progress rate	Percent of degree-seeking students who have earned 30 credits in good standing or who were enrolled in last term of study period but have not graduated or transferred; by race/ethnicity	OIRA cohort files

46	Exit rate	Percent of degree-seeking students who have discontinued study at PGCC without graduating, transferring, or attaining sophomore status in good standing; by race/ethnicity	OIRA cohort files
47	Goal achievement	Self-reported achievement of student goals	OIRA surveys
48	Graduates	Number of graduates; by award type, race/ethnicity, sex	DIS edit report
49	Awards	Number of degrees and certificates awarded; by program, age, race/ethnicity, sex	Information Systems report SPB072
50	**Transfers**	Number of transfers to Maryland colleges and universities; by receiving institution	MHEC EIS transfer matrix
51	**Transfer GPA**	Grade point average distribution of PGCC transfers at Maryland senior colleges and universities	MHEC SOAR Transfer Student System
52	**BA attainment**	Bachelor's degree attainment rates of PGCC students at Maryland institutions five years after transfer	MHEC SOAR Transfer Student System
		ALUMNI	
53	**Employment**	Percent of graduates employed in jobs related to their PGCC program; by program	OIRA graduate survey
54	**Licensure**	Pass rates of first-time candidates on licensure/certification exams; by program	Board reports obtained from Health Technology Division
55	**Career advancement**	Percent of graduates reporting PGCC helped in job attainment, promotion, skill improvement, and career preparation	OIRA graduate survey
56	**General education**	Likert scale means of self-reported achievement of general education goals	OIRA graduate survey

57	**Graduate satisfaction**	Percent of graduates rating PGCC preparation for transfer/employment good or very good (on five-point scale); percent who would recommend PGCC to person seeking a degree in same program	OIRA graduate survey
58	Continuing education	Percent of graduating class enrolling in PGCC credit or noncredit course(s) subsequent to graduation	OIRA annual unduplicated headcount analysis
59	Alumni Association	Percent of graduating class joining Alumni Association	Alumni Association
60	Alumni donors	Percent of graduating class contributing to Annual Fund drive	Development Office

Note: Indicators in **bold** typeface are *primary PMIs* included in routine reports to the college's Board of Trustees and/or in the annual *Student Learning Outcomes Assessment Report* to the Maryland Higher Education Commission.

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Freshmen for Sale: The Role of Financial Aid in Matriculation of Admitted Students

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Introduction

Richard W. Moll (1994) recently wrote about many small liberal arts colleges scrambling to get their new freshman classes, and their balancing act between the quantity and quality of the student body. In this "war-like" environment, the role of financial aid has become extremely critical in overall enrollment management. James Scannell (1992) stated that "the purpose of any financial aid program - institutional, government, or private - should be to provide monetary assistance to students who can benefit from further education but who cannot do so without such assistance. The primary purpose of a collegiate financial aid program should be to provide financial assistance to accepted students who, without such aid, would be unable to attend that college (p. 16)." However, financial aid awards are no longer primarily designed to lessen the financial burden of students and their families, but have become tools for buying students. Many colleges, especially small privates, have been practicing financial aid strategies to optimize their desired student mix. However, do we really understand the role of financial aid in student matriculation?

St. John (1990) used national high school cohort data to analyze the effect of the amount of tuition charged and financial aid offered on student enrollment decisions. He found that all forms of financial aid—grants, work, and loans—were effective in promoting enrollment. Each $100 of grant aid increased the probability of enrollment by .43 percentage point, and each $100 of loan increased the probability of enrollment by .38 percentage point. St. John's study showed that low-income students were more responsive to an increase in grant aid than to increases in loans or work study; however, high-income students were not responsive to changes in aid amounts. More recently, Trusheim & Gana (1994) analyzed approximately 3,000 financial aid offers at a large, public, doctoral level university and found that each $1,000 increase in grant awards increased the likelihood of enrollment by 6.7 percentage points for need-based aid applicants. For merit scholarship recipients, each $1,000 increase in merit awards increased the likelihood of enrollment by only 2.3 percentage points. Although these percentage points were statistically significant, these researchers stated that a real increase in the probability of freshman enrollment was very small.

A small, private liberal arts college, located in the mid-Atlantic region, conducted an exploratory study of its financial aid data. The methodology used was very similar to Trusheim and Gana's (1994) study. This paper will describe an effort to understand the role of financial aid in the matriculation of admitted students at a traditional four year undergraduate institution. The discussion will focus on three questions:

1. Does financial aid make a real difference in freshman matriculation?
2. Which population is most likely to accept the "offer" and matriculate?
3. Can we determine the peak total aid amount to maximize the yield?

Methodology

Freshman financial aid data from fall 1991, fall 1992 and fall 1993, both need-based and merit awards, were examined for this exploratory study. The data included 1,696 individual cases with 32 variables (see Table 1). Table 2 shows a frequency distribution of the sample.

Variables Used for Initial Analysis

Student Information

1. Student Name
2. ID Number
3. Cohort Year
4. Home State
5. Zip Code
6. Enrollment Decision
7. Ethnicity
8. Gender
9. Student AGI
10. Student's Age

Student Ability

11. Reader Rating (internal grading system)
12. Merit Scholarship Type
13. SAT Verbal
14. SAT Math

Financial Aid Information

15. Applicant's Dependency Status
16. Calculated Need Amount (based on internal method)
17. Total Aid Amount
18. Merit Aid Amount
19. Institutional Grant

Parent Income and Other:

20. Parents' Marital Status
21. Parent's Age
22. Household Size
23. Number of Parent's Exemptions
24. Number in College
25. Parent AGI
26. Parent Tax
27. Dad's Income
28. Mom's Income
29. Un-taxed Income
30. Family Income
31. Home Value
32. Home Debts

Table 1

First, a correlation procedure was run to extract variables which showed some linear relationship with students' enrollment decisions. After the initial analysis, several regression analyses were conducted to address the three research questions. The outcome variable, student matriculation, was a dichotomous outcome - those who enrolled were coded as "1". For regression testings, the total financial aid amount and merit award were coded in increments of $1,000 ($1,000 = 1). Logistic regression procedure was used since it is appropriate for statistical testing of dichotomous variables. Categorical data modeling was also used in the analyses. This procedure analyzes data that can be represented by two-dimensional contingency tables. Small numbers of outliers were excluded from regression testings.

In this exploratory study student abilities, gender, ethnicity and region were not included in the analyses. These variables will be examined in the second phase of the research.

Results

Nearly two-thirds of the sample demonstrated financial need for aid, and 68.2 percent received financial aid offers. Only 33.8 percent of the sample matriculated at this institution.(See Figures 1 and 2 for the number matriculating at each aid level.) Need-based aid was awarded to 44.5 percent of the sample. Twelve and one-half percent received a combination of need-based aid and merit award, and 11 percent received merit awards only (see Table 3). The amount of total aid, parents' adjusted gross income, mother's income, and family income, despite small correlation coefficient values, showed statistical relationship with student's enrollment decision (see Table 4). Interestingly, except for amount of total aid, these correlations were negative.

Sample Distribution

Fall 1991	465	(27.4%)
Fall 1992	558	(32.9%)
Fall 1993	673	(39.7%)
Male	485	(28.6%)
Female	1,211	(71.4%)
Maryland	654	(38.6%)
New Jersey	118	(7.0%)
Delaware	21	(1.2%)
Washington,D.C.	12	(.7%)
Pennsylvania	152	(9.0%)
Virginia	52	(3.1%)
Other	687	(40.4%)
Average family size	3.99	(s.d. =1.19)
Average family income	5,796	(s.d.=$31,223)
Students with demonstrated need	1,108	(65.3%)
Students who received aid offer	1,157	(68.2%)
Enrolled	574	(33.8%)
Did not enroll	1,122	(66.2%)
African American	124	(7.3%)
Native American	6	(.4%)
Asian American	78	(4.6%)
Hispanic	75	(4.4%)
White	1,404	(82.8%)
International	9	(.5%)

Table 2

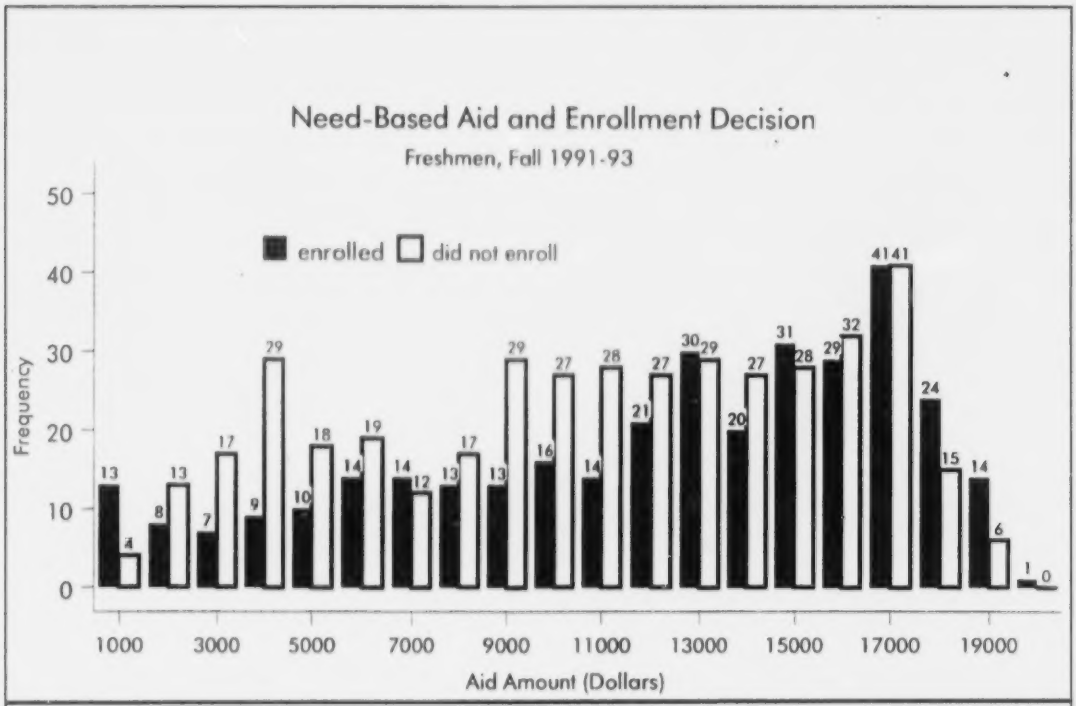

Figure 1

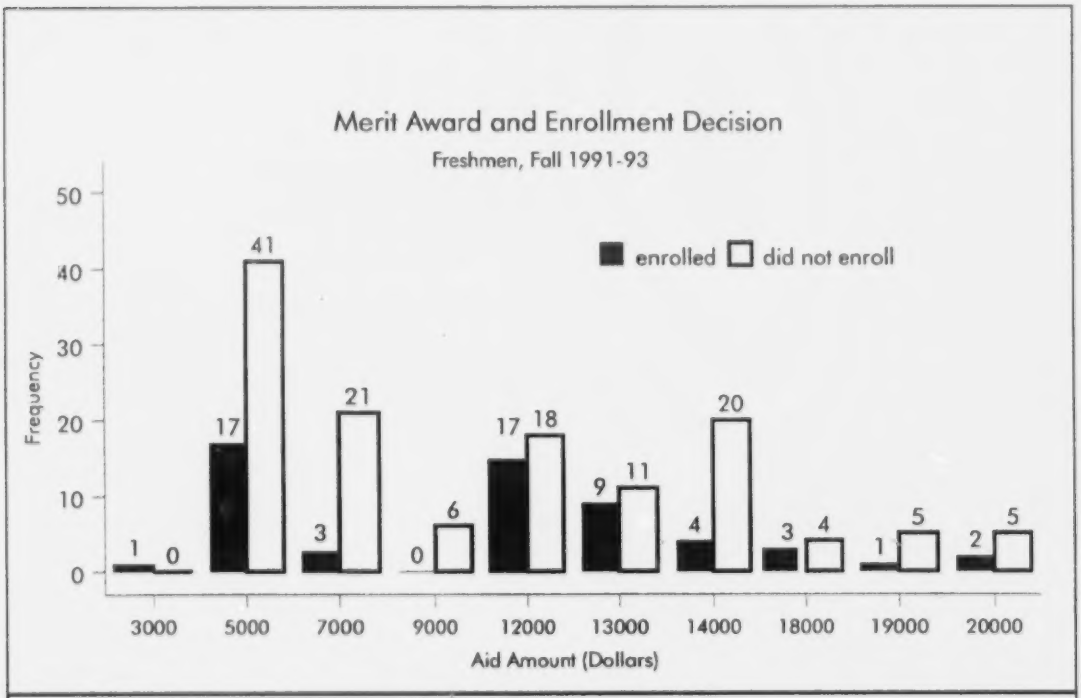

Figure 2

Financial Aid Packages Offered

No aid	539	31.8%
Merit award only	188	11.1%
Need based aid only	754	44.5%
Need based and Merit award	215	12.7%
Total	1,696	100.0%

Table 3

Correlation Coefficient Matrix

	ENRDEC	NEEDAMT	TOTAID	MERIT	GGRANT	PARAGI	DAD INC.	MOM INC.	FAM INC.	HOME VAL.	HOME DEB.
ENRDEC	1.0000	0.0314	.1047*	0.0401	0.0759	-.1074*	-.0296	-.1390**	-.1410**	.0423	-.0006
NEEDAMT		1.0000	.8480**	-.0103	.7480**	-.4006**	-.3111**	-.1815**	-.3768**	-.2144**	-.2426**
TOTAID			1.0000	.1434**	.8455**	-.4482**	-.3705**	-.1819**	-.4402**	-.3053**	-.1949**
MERIT				1.0000	-.2162**	-.0274	-.0541	-.0008	-.0616	-.0434	.0420
GGRANT					1.0000	-.3486**	-.2921**	-.1242**	-.3337**	-.2662**	-.1855**
PARAGI						1.0000	.7808**	.3836**	.8813**	.3598**	.2695**
DADINC							1.0000	-.1809**	.7016**	.3271**	.2761**
MOMINC								1.0000	.3858**	0404	.0266
FAMINC									1.0000	.3347**	.2209**
HOMEVAL										1.0000	.5915**
HOMEDEB											1.0000

* significant at .01 ** significant at .001

Table 4

Logistic regression testings were conducted on 754 need-based aid and 188 merit award recipients. Somewhat negative relationships between the amount of financial aid and student matriculation were observed. The results suggested that each $1,000 increase in need-based aid decreased the likelihood of enrollment by 5.56 percentage points. Likewise, each $1,000 increase in merit award decreased the likelihood of enrollment by 2.28 percentage points. When need-based aid amount and family income were loaded together as independent variables, the negative relationship between need-based aid and student matriculation got smaller.

Still, a slight negative relationship between the need-based aid amount and student matriculation was observed. However, as the family income of students increased, their likelihood of enrolling at this institution increased. Categorical data modeling also confirmed the negative value of the total need-based aid as a predictor for student matriculation in this institution. However, this minor negative relationship should be interpreted with caution. The data showed that admission yield was significantly higher with students who received aid offers of $15,000 and higher—57.4 percent of the students who received $15,000 plus matriculated, whereas only 39.8 percent who received less than $15,000 did so. This seems to suggest that need-based aid should be substantial enough to cover the cost of tuition and fees to influence students' enrollment decision.

Loading the family income with the amount of merit award did not change the results. Again, family income showed a positive relationship with student matriculation. But, the impact of family income among the merit award recipients was not as strong as that observed among the need-based aid recipients.

Discussion and Future Study

The negative relationship observed between need-based aid, merit award, and student matriculation in this study is different from the findings of other similar studies. Studies using national data and data from public institutions found a linear relationship between the need-based aid and student enrollment (St. John 1990; Trusheim & Gana, 1994). The results of this study raises the possibility that in small, private, liberal arts colleges, financial aid might have a very different role in influencing students' enrollment decisions. Given the high cost of attending private colleges, coupled with large family income differences among applicants, need-based aid alone did not significantly increase the matriculation rate. Not surprisingly, family income was a much stronger predictor for admitted applicants' enrollment decisions. Merit awards add another dimension to financial aid strategies. This study showed that the size of the award did not make a significant impact in increasing student matriculation. The student yield rate among the need-based aid recipients was 44.5 percent, whereas, the student yield rate among the merit award recipients was 30.3 percent. Clearly, in the "war-like" market, described by Richard Moll (1994), the size of financial aid alone will not insure matriculation of academically able freshmen.

Studies in the field of college enrollment behavior strongly suggest that the decision to attend a particular institution is not solely driven by tuition and fees, and financial aid award. These studies echo what we already know—desirability of a particular college to an individual (i.e., first choice, family ties, etc.), prestige and reputation, and quality of academic programs are stronger predictors of student matriculation.

In the second phase of this research, the following questions will be addressed:

- What is the relationship between the total financial aid package and student matriculation?
- Is there any relationship between financial aid, student abilities, and student matricultion?
- Do the students from Maryland and surrounding states behave differently than those who are coming from other states?

These types of analyses could assist college/university administrators to control their ever-increasing financial aid budgets and develop truly effective aid strategies to lessen the financial burden of attending a liberal arts college.

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Reengineering the Academy: Is There a Role for Institutional Research?

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The latest management technique to migrate from the corporate world to higher education is reengineering. Sometimes known as business process reengineering or business process redesign, reengineering has been cropping up on American college and university campuses the last couple of years. Schools from California to New York, public and private, and at least one entire statewide university system are busily engaged in it. What is reengineering? Why are campuses doing it? What are some of the results? What role might institutional research play in this new movement to change higher education?

What is Reengineering?

Michael Hammer and James Champy are the leading gurus of reengineering in business. In their book, *Reengineering the Corporation: A Manifesto for Business Revolution* (1993) they define reengineering as "starting over," and "the fundamental rethinking and radical redesign of business process to achieve dramatic improvements in critical contemporary measures of performance, such as cost, quality, service and speed" (p. 32).

Four Little Words

The word *fundamental* in their definition of reengineering means going back to such basic questions as: Why do we do what we do? Before one can improve one must ask: What is the purpose of the process we want to change? In institutional research we are very concerned with the accuracy of the demographic data that we collect from students and all of us work hard to improve this process. Hammer and Champy would argue that we should first ask: Why do we collect these data? Because we are required to? The question then becomes: Why are we required to collect the data? So that state and federal government will have the data? Perhaps the question should be: If we were not required to report the data would we still collect it? All of it or just some of it? Asking these kinds of questions should lead us to realize that we collect demographic data on students for many reasons besides mandatory reporting, not the least of which is compiling baseline data about the institution's students for better management of the campus. How could we conduct student surveys, make marketing plans,

conduct enrollment management without knowing the demographic characteristics of our students? First you must define what is the purpose of the process you want to reengineer.

The second key word is *radical*—radical redesign. Reengineering is not superficial change, it is not rearranging the deck chairs on the Titanic. Radical means asking: How do we reinvent the process to accomplish our purpose while dramatically improving cost, quality, service and speed? Do we really have to collect data from all of our students? What is wrong with sampling? Could not the federal government get the data it needs by using a sample, as the Census Bureau would like to do with the every ten year census? Couldn't they just sample some schools? What if they contacted individual students through the mail, phone or Internet? Would that be cheaper? Would the information be as valid? Would it be faster? Would it improve service? To get these answers you must first ask the questions. Reengineering means "disregarding all existing structures and procedures and inventing completely new ways of accomplishing work" (Hammer and Champy, p.33).

Dramatic is the third key word in Hammer and Champy's definition. "Reengineering should be brought in only when a need exists for heavy blasting" (p. 33). The goal is to hit a home run, not get a base hit (Dougherty et al., 1994, p. 6). Reengineering is about radically changing the fundamental, core processes of the institution. We might call it reengineering when we change the way paper mail is picked up and delivered on campus...but it wouldn't be. Neither would eliminating all paper mail by substituting imaging and e-mail—unless distributing mail was a core or fundamental process of the school. Does our institution exist to distribute mail? On most campuses the fundamental or core processes are teaching, research and public service. Redesigning the way we deliver instruction, going from a faculty member delivering a lecture to physically-present students to students learning at their convenience over the information superhighway in their home or office by a multimedia presentation—that would be reengineering.

Process is the last of the key words but it is the most important and most difficult to deal with. When thinking of change most of us focus on the job, the person or the organizational structure as the thing that needs improvement. Reengineering as conceived by Hammer and Champy requires a broader point of view. We need to take a holistic look at the work that needs to be done. We need to look at the system and redesign it to improve cost, quality, service, or speed no matter what changes are required in the job, the organizational structure, or the tasks required of the individual.

Many of our campuses are using or are about to use voice response technology for registration. If registration of students is a core process of the institution, the redesign of registration to improve student service, save money, and speed up the process would be reengineering. To best use the technology, to go for the home run, one should redo the entire registration process. This means that the jobs of registration clerks change. Instead of standing at the counter handing out paper they become a resource person to deal with problems that voice response can't handle. This requires different tasks, different training, and maybe in some cases a different person if that clerk can't make the shift in method of operations required. Reengineering registration also means that academic folks have to realize that advising and registration are not the same thing and that they do not have to take place at the same time or in the same way. In reengineering, changing the process means that the job descriptions, tasks and organizational structure give way to improving quality, service,

speed, and reducing costs. In practice we often adopt voice response without altering the process. That is not reengineering.

Customer Driven

Another key element of reengineering is the customer. Though it doesn't appear in Hammer and Champy's definition it is implicit throughout their writing. Who do we try to improve service for? The customer. Who do we try to lower the cost for? The customer. Who do we try speed up the process for? The customer. Who do we improve quality for? The customer. Customer is one of those words that many of us in higher education don't like. It is somehow demeaning to say we have customers. Higher education has students, not customers. We do public service, but we don't have clients. We conduct research to discover or create new knowledge, not to satisfy the criteria of a granting authority. It somehow threatens the autonomy of higher education, its independence, to talk of customers. Without customers there can be no reengineering. Truly, one of the saddest statements to hear is that "we don't have customers." It is the feedback from customers, internal or external, that lets an institution know that it needs to reengineer. It is feedback from customers that lets a campus know if reengineering has succeeded.

Information Technology

Information technology also plays a key role in reengineering. It is in fact often over-emphasized to the point that we think reengineering means any implementation of information technology in administrative process. Some even think that is the purpose of reengineering, to substitute information technology for costly, inefficient and non-cooperative human beings. That is putting the cart before the horse, discovering some bright and shining technology like client server computing and then looking for a problem to which it is the answer. Information technology must be the means to the end, not the end itself. Almost all of the gurus agree that the reengineering must come first, then the information technology. The power of information technology can allow or make possible the radical redesign of core process (Penrod and Dolence, 1992, p. 2), but the reengineering must take place first. One reengineers keeping in mind the technology but one does not reengineer to simply use the technology (Dibble and Glenn, 1994). Technology must help the reengineered process deliver better service, at higher quality, at greater speed or at lower cost.

Data Intensive

There is a final characteristics of reengineering, one that should warm the cockles of an institutional researcher's heart: it is data intensive (Dougherty, et al., p. 5). How does one identify processes to reengineer? Through customer satisfaction surveys. For any process to be reengineered there must be baseline data on volume, cost, and cycle time. The process must be flow charted, so that each step in the process can be evaluated to determine if it adds value or not to the process (Dougherty, et al., p. 23). Ideally the process would be benchmarked, comparing it with other processes inside or outside the institution to see what level of performance is possible (Dibble and Glenn). Could this be another full employment act for institutional research?

What Reengineering is Not

The above discussion of what reengineering is also suggests what reengineering is not. Reengineering is not Total Quality Management, though they share an emphasis on improving quality to increase customer satisfaction. TQM takes the existing process and relies on making incremental changes for continual improvement. In TQM the batter gets a walk, steals second and third, and then comes in on a sacrifice fly. No home runs with TQM, they are not desirable nor are they really possible. TQM and reengineering come from philosophies that are poles apart, one ying the other yang. Nonetheless one could argue that first a process should be reengineered and then TQM should be used to keep the improvement going.

Reengineering is also not cheap nor is it quick. The reason most often given for doing reengineering is to cut costs and save money. The process itself is not cheap in either work hours or the technology to implement its solutions. Reengineering in fact may save nothing at all, but it should result in better service, quality, speed, and customer satisfaction. Any reengineering project that simply saves money isn't reengineering at all; it may be restructuring, downsizing, or rightsizing, but it isn't reengineering.

Neither is reengineering easy if it is done right (Dibble and Glenn). Starting over, fundamental rethinking and radical redesign, achieving dramatic improvements in cost, service, quality, and speed—these are not easily done. Becoming customer-oriented, to say nothing of customer-driven, may be impossible for many individuals and institutions. And in all too many places, including institutions of higher education, decisions drive the data, rather than data driving decisions. And who can resist the siren call of the latest technology? If only we could find some way to justify acquiring "cutting edge technology!"

Business Process Reengineering: Not Reengineering

If reengineering is hard, if it is so daunting a task, why do it? My research has led me to believe that very few, inside or outside the business world, really do. I have seen examples of restructuring, downsizing, institutional reorganization—but not reengineering, in higher education. Maybe it is impossible, as Porter (1993) writes in his devastating critique, to do reengineering in higher education. Porter argues that institutions of higher education can't do reengineering as Hammer and Champy define it, at best we can only do something that is much more limited. We can redesign administrative procedures (e.g., registration) but we can't start over and do fundamental rethinking and radical redesign because that would require a change in the culture and the governance structure of the university. No one is hitting any home runs.

However, maybe doubles or even triples are possible. Even if we can't do reengineering in the purest sense maybe we can use reengineering methods to improve service, quality, speed, and cost. No one would seriously propose that a campus give up teaching—the process—but perhaps the sub-process of registration could be improved by reengineering so that learning would be enhanced; that would be business process reengineering or business process redesign. In fact that is what most of the colleges and universities are doing in the name of reengineering, business process redesign; improvement of a sub-process in hopes that it will improve the core process of which it is part.

Business Process Reengineering at Work

Examples of business process reengineering abound. NACUBO's book, *Business Process Redesign for Higher Education* has six excellent case studies on reengineering procurement, managing facilities, admitting undergraduate students, creating a master course schedule, updating employee personnel records, and disbursing financial aid awards. Dibble and Glenn in their seminar have two very powerful simulations on admissions and transfer credit evaluations. CAUSE has a library full of articles and documents dealing with reengineering that can be accessed by listerv or gopher. All of these are examples of reengineering administrative process. Reengineering academic processes is largely in the discussion phase; an excellent dialogue on that possibility is contained in CAUSE Professional Paper #10, edited by Robert Heterick, *Reengineering Teaching and Learning in Higher Education: Sheltered Groves, Camelot, Windmills and Malls*. Also relevant is a series of articles written by Carol Twigg of SUNY-Empire State that have been appearing in recent issue of *Educom Review* magazine.

Institutional Research and Business Process Reengineering

I believe institutional research should play a key role in business process reengineering (BPR). As a data-intensive process it is obvious that institutional research will be a major source of data needed for the effort. But we should do more than that, much more than that. I believe that institutional research should be in on the ground floor, an institutional research person should be on the committee that directs the BPR effort. This is the group that identifies targets for reengineering, designates the people to carry out the BPR and then evaluate the results. Institutional research should be on the lead committee for a couple of reasons. First, BPR relies on accurately measuring the level of customer satisfaction with the existing process. This is survey research and unless done correctly could doom BPR. Someone who knows the difference between a random and grab sample, someone who knows about statistical reliability and validity must be part of the group that decides what process is to be reengineered; that is if the purpose of BPR is to improve service for the customer.

Secondly, institutional research must be on the lead group to make sure that in reengineering a particular administrative process the larger system is not weakened. Ignoring the larger system while reengineering a sub-process is known as suboptimization (Markus and Keil, 1994). Suboptimization occurs when one narrowly focuses on one administrative sub-process while ignoring its connections to other processes or its relationship to the whole system. For instance, admissions is a process that could be easily reengineered, giving better service to students while at the same time degrading the system overall. The admissions process could be reengineered so that its only concern is the admit decision. Wouldn't admission be much faster, give better service to students, and cost less if the admissions office did not have to collect all that demographic data from students on their sex, race, and age? "We don't need to know this stuff to admit students. Why should we collect it? It's institutional research data. Let them collect it." This attitude of course overlooks the fact that these data are also needed for marketing and enrollment management as well mandated state and federal reporting. Institutional research should bring to bear its broader outlook of the university as a whole to the BPR process. Somebody has to look out for the flow of data throughout the entire institution. Who else but institutional research?

Lastly IR should be on the BPR group because of the importance of the evaluation process. A common error of BPR is failure to follow up on the reengineered process, to see if it is still serving the customer better, to see if it is still delivering better quality and to see if it is still faster. Though this can be a criticism of most efforts to make improvements, reengineering unlike TQM is particularly susceptible to this malady. TQM is built on the axiom that the commitment to improving quality never ends, that there is no stopping point where one finally has enough quality. Reengineering or BPR doesn't address the need for continual improvement. It assumes, naively I think, that if the right process for reengineering is identified, if the proper procedure is followed, and if the tools of reengineering are used then a near perfect and stable process will emerge. The unspoken assumption is that if reengineering or BPR is done right it won't have to be done again. A natural hubris underlies this idea but it is also understandable if one remembers how much time, effort, and dollars are invested in reengineering. Institutional research should be on the BPR committee to remind everyone that in today's world the only constant is change; what is perfect today may be fatally flawed next year.

Is Reengineering Simply a Fad?

In closing let me suggest that reengineering is more than a fad, the management technique of the month. Colleges and universities today are under tremendous pressures to change the way they operate. The recession of the early 1990s left most institutions weaker financially. For public institutions there is little hope of a return to the more prosperous times of the 1980s because even with a recovery the competing needs of prisons, welfare and K to 12 seem to be getting more legislative attention. Private schools are tuition dependent and the discounting of tuition through financial aid is a time bomb ticking away. The need to cut costs is real for everyone and business processes reengineering advocates promise to do just that.

The cry for accountability won't go away either. Colleges and universities are continually asked to defend what they do and how well they do it. Legislatures reflecting widely-held opinions are scrutinizing institutions as never before and without any letup in sight. We should reengineer, so its advocates argue, because it will demonstrate how business-like we are. Colleges and universities won't be called for inefficiency and ineffectiveness if they reengineer their administrative process. Whether being more "business-like" will satisfy the legislative and other critics is subject to question.

Nor will rising consumerism from students and parents be expected to give way. Business process reengineering will cut costs, save money and thus help keep down tuition increases. Can enough be saved to give colleges and universities the funds they need to improve existing programs and start new ones? How much fat is there to cut?

Reengineering can result in real improvements in quality, service, speed, and cost, but it can't solve many of the pressing problems of higher education. Reengineering could make scheduling classes easier but it can't bring about the three year B.A. or B.S. that many are calling for. Surely the career planning and placement process could be reengineered to improve the quality of service to students, but it won't bring about more jobs for history and English majors These and other more intractable problems are beyond the scope of a limited model for change like business process reengineering. We still need to ask and answer the fundamental questions posed by Hammer and Champy in their definition of reengineering.

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A Note on Electronic Sources

The CAUSE Document Exchange Library can be accessed by e-mail or Gopher. For e-mail send a message to info@cause.colorado.edu with words LIBSEARCH Reengineering in the first line of the message. Point your gopher at cause.gopher.colorado.edu and chose the following menus. Search the CAUSE GOPHER Titles, specify reengineering. Or select the menu item CAUSE Publications.

Also quite fruitful is doing a VERONICA search on the words reengineering, business process reengineering or business process redesign.

Institutional Research: What Should We Expect?

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Accountability continues to pervade the higher education agenda. Assessment of student learning outcomes, faculty productivity, facilities usage, resource allocation and cost containment strategies—these and other evaluation processes are now commonplace. At most colleges, institutional research is heavily involved in these accountability and assessment activities. With access to and understanding of institutional databases, sophisticated analytical capabilities, report-writing skills, and reputations for objectivity and credibility, research offices are typically well situated to contribute to campus accountability efforts. But institutional research itself should not be immune to such scrutiny; the research function must be accountable as well. Such assessment requires standards and measures for assessing the effectiveness of institutional research. These standards and measures should reflect the expectations placed on institutional research.

What should others expect of institutional research? What should we expect of ourselves? What should we expect of our institutions? This article addresses these *What should we expect?* questions based on experiences from two different viewpoints. First, from the perspective of a research director at a statewide association of independent colleges, a *consumer* of institutional research for influencing public policy in the state capital. Second, from the perspective of a director of a college research office, a *provider* of institutional research for both internal and external audiences. The authors draw on over 20 years of personal experience studying and attempting to improve the practice of institutional research. The paper also benefitted from a lively dialogue on these issues conducted during January and February 1995 over the MdAIR-list, the electronic discussion list of the Maryland Association for Institutional Research. The contributions of our Maryland colleagues—especially Ron Maggiore, Dan McConochie, Javier Miyares, and Merrill Pritchett—are gratefully acknowledged.

The Effective Institutional Research Office Defined

Effective research offices are integrated into decisionmaking at the highest levels of their institutions. Behaviors that are indicative of effective institutional researchers include (1) being a member of, or regular participant in meetings of, the president's staff or college planning council, (2) making significant contributions to collegewide budgeting and resource allocation decisions, (3) publishing information that raise issues onto the agenda of top policymakers, (4) completing analyses that influence major institutional policy decisions, and (5) periodically making presentations to the institution's governing board (although this is more likely at a community college or liberal arts college than at a large university). In a phrase, the effectiveness of institutional research is measured by its *impact on policy*.

This policy-influencing role is not new, but it is becoming a primary function of institutional research as technological and managerial trends displace the data-providing role of the past. Distributed processing and decentralized decisionmaking suggest that many in the organization may need and have access to data. In such environments, institutional research may take on decision support system design, data administration, and end-user training functions. But we argue that the research professional, combining a penchant for the details involved in data analysis with a broad campuswide perspective, can be an invaluable member of the top policymaking group. If the right information can improve policy choices, the institutional researcher is potentially the best person to provide it.

To fulfill this policy-influencing role, the institutional research professional needs to be considered a part of the top policymaking team and should exhibit the behaviors enumerated above. At many institutions, this would mean raising existing expectations about the contribution institutional research should be making. Concomitant with these higher expectations, however, may be the need for increased institutional support in staffing and other resources. We suspect that much of the suboptimal performance we see reflects the inadequate support associated with low expectations.

Breaking out of this low expectations-inadequate support-suboptimal performance cycle may take changes in attitudes by both the consumers and providers of institutional research. The next two sections provide discussions of the expectations we feel are reasonable from both points of view; that is, what consumers should expect from institutional research, and what institutional research should expect from its institution.

Institutional Research: What Should Its Consumers Expect?

Sponsors and consumers of institutional research should be able to expect the following from its practitioners:

Technical competence. Researchers are presumed to know what they're doing in terms of research design, database structures, data analysis, computer applications, and similar number-crunching skills. Such technical competencies should be prerequisite to securing a position in institutional research.

Professional integrity and ethics. Commitment to, and practice of, proper professional behavior as embodied in the AIR *Code of Ethics* for institutional research is assumed. The temptations for transgressions are plentiful, given the discretionary nature of decisions re-

garding research design and methodology, and the political pressures to produce findings supportive of those in power. Darrell Huff, in *How to Lie with Statistics* (1954, p. 120), made the first point this way:

> The fact is that, despite its mathematical base, statistics is as much an art as it is a science. A great many manipulations and even distortions are possible within the bounds of propriety. Often the statistician must choose among methods, a subjective process, and find the one that he will use to represent the facts. In commercial practice he is about as unlikely to select an unfavorable method as a copywriter is to call his sponsor's product flimsy and cheap when he might as well say light and economical.

A common data adage in the profession is that "if you torture data long enough it will confess to anything." Institutional research must resist becoming a legitimation function for preordained decisions.

Policy relevance. In our view, the key value of effective institutional research is its contribution to informed policymaking. This requires that the researcher possess both issues intelligence and contextual intelligence (Terenzini, 1991). Awareness of the institution and the environment in which it operates is necessary to maximize the policy impact of institutional research. According to Ewell (1989, p. 2):

> the successful application of knowledge requires the simultaneous presence of two conditions. First, the information must have a visible bearing on a perceived problem. Second, there must be a constant and consistent dialogue between those who gather and provide information and those who must use it.

This dialogue is needed for several reasons. Regular interaction with top management ensures that the researcher knows what top policymakers want—and need. If the researcher knows the context and focus of the impending policy decision, he or she may be able to provide useful information beyond that which policymakers have requested. Policymakers do not want to be overwhelmed with data, but rather benefit most from information that is targeted. ("Data, data, everywhere but not a thought to think" is the situation to be avoided. Put another way: Data without a mission may as well be missing. Or: Data without context is misinformation.) The dialogue is further enhanced and facilitated if the research professional understands the history and culture of his or her institution. Knowledge of individual personalities and campus politics should shape research agenda and dissemination decisions, ensuring the "organizational validity" that promotes acceptance of research findings (Heacock, 1993).

In addition to knowing your campus and the needs and personalities of its key decision-makers, researchers benefit from knowledge of trends in the institution's external environment. Regular environmental scanning, including a close eye on the corporate world, can help the researcher anticipate upcoming issues affecting the campus so that current research design and database decisions position the office for future policy-relevant contributions. Intelligence-gathering is a prime institutional research function, and key to ensuring its policy relevance.

Effective communication. Researchers must present their findings in formats accessible to top policymakers. Transforming data into useful information is both an art and a science. Researchers are expected to possess tabular, graphic, written, and oral communication skills (Clagett and Huntington, 1993).

High productivity. Given the demands typically made on them, research offices must operate at high efficiency in order to free up the time for the context-rich, issue-focused projects we advocate as institutional research's major contribution to its campus. And, in these tight fiscal times of doing more with less, institutions have a right to expect high productivity from each campus office.

Initiative. An efficient research office, attuned to the policy environment facing campus decisionmakers, should be in a position to raise new issues, contribute new, unsolicited insights, and bring new data to bear on hot issues. An example of an effective institutional research initiative at Prince George's Community College is illustrative (Clagett, 1992). The college was under attack by students and local legislators for its high tuition, despite its record of low per-student expenditures and modest budget. The institutional research director, on his own initiative, acquired expenditure data for Prince George's and four neighboring counties from the state department of fiscal services and developed a comparative analysis of community college funding. The analysis found that, by several different measures, Prince George's had provided about half the level of community college funding support that the other counties provided. Dissemination of the comparative funding analysis succeeded in defusing the high tuition charge, by deflecting most criticism away from the college and to the historically low level of county support. Legislators and students came to understand that differences in student charges reflected differences in county aid. County budget staff acknowledged privately that a planned cut in the county's contribution to the college was averted because of the persuasive case made by the college that the county had consistently underfunded it in the past.

Impact. This is the ultimate measure of success. Institutional research success stories provide new understandings of important issues, lead to changes in campus policies, contribute to improving student success, save money or raise revenue, or otherwise have a major impact on an institution. Mired down in mandated reporting or responding to the latest ad hoc data request, researchers enjoy too few of these successes. But such impact is what institutional research should strive for. Regularly making a positive impact typically depends upon all of the above listed attributes—competence, integrity, relevance, communication skills, high productivity, initiative—plus savvy and often a dose of luck. Knowing the organizational and personal objectives of key decisionmakers is crucial, but sometimes serendipity plays a role.

Self-evaluation and continuous improvement. Research, like all other campus functions, should be expected to routinely monitor its performance and strive for improvement. This can be done through adoption of Total Quality Management techniques (Heverly, 1993; McLaughlin and Snyder, 1993) or less formal practices, such as those described in the final section of this paper. Zeglen (1994, p.2) has suggested that, by "adopting tactical applications of TQM techniques rather than the more long-term strategic deployment of TQM planning, some gains in productivity and quality may be achieved by offices with less investment of scarce time and staff resources." Two tools mentioned by Zeglen are especially useful in

institutional research. First, maintenance of an *error log* listing errors by stage of occurrence and detection (project definition, design, production, presentation, or evaluation), the person discovering the error, insights into why the error occurred, and suggestions for preventing such errors in the future. (In her study, most errors occurred during the production stage. Three-fourths were discovered by research office staff, but nearly half were discovered after the project results had left the office.) One tool for helping minimize errors is a *quality action questions (QAQ) checklist* (Zeglen, p. 12) that prompts evaluation at each stage of a project.

Humility. At the 29th annual forum of the Association for Institutional Research in Baltimore, James Dator suggested that institutional researchers occupy a "very precious space between spineless administrators and mindless academicians." Talented researchers can develop a professional arrogance after years on the job, but are well advised to keep in mind the limitations of the information services they provide. Not everything that counts can be counted, and not everything that can be counted, counts. The following disclaimer has made its way around the Internet:

> We fully realize that we have not succeeded in answering all of your questions. Indeed, we feel that we have not answered any of them completely. The answers we have found only serve to raise a whole new set of questions, which only lead to more problems, some of which we weren't even aware were problems. To sum it all up, in some ways we feel we are as confused as ever, but we believe we are confused on a higher level, and about more important things.

A sense of humor. Institutional research can be very stressful, especially if it is involved in the top policy issues we argue it should be. But we all must keep a proper perspective on life, and sharing or raising a smile is always important.

What Should Institutional Research Expect from Its Institution?

In order to deliver on the expectations of its users, institutional research should expect the following from its institution:

Regular interaction with policymakers. As noted above, to ensure that the work institutional research does will be useful to policymakers requires ongoing dialogue with them. Establishing personal rapport with people at the top increases the likelihood that research will influence policy. As one respondent to the electronic discussion list put it, "a one-person office with no budget but having access and trust from the president can have more impact than a well-funded office four layers down." There is evidence to suggest that many researchers are frustrated by the lack of this kind of access. A survey of all community college research officers in the South found insufficient access to top level administrators and a lack of appreciation by direct line supervisors of the potential contributions of institutional research to be major complaints (Rowh, 1992). Similarly, a national survey of AIR members found presidents who weren't data people, lack of access to top decisionmakers, and perceptions that research wasn't part of the campus leadership team prevalent complaints (Huntington and Clagett, 1991). Sample comments from the latter survey:

> *The biggest obstacle to our effectiveness is the lack of communication from senior administrators regarding current and upcoming policy issues.*

Reporting line is not close enough to top level decisionmakers.

Key leaders do not understand IR and the function it should perform. We constantly have to coach and explain information to several key leaders.

The biggest problem is not having people at the top who really want the data and information institutional research can provide.

None of our top level administrators are data people. The college does not take advantage of the resources of the IR office anywhere near the degree it could because upper level administrators don't realize the potential of the office and have trouble relating to data.

In addition to ensuring the relevance, dissemination and use of research, regular dialogue provides opportunities to participate in policy exploration and development, eliciting the passion that creative research professionals revel in and encouraging innovation and initiative in the research office.

Access to campus databases. Research offices must have direct access to campus electronic databases. Many institutions are moving to decentralized processing, and encouraging offices campuswide to access and analyze data on their own. At such places, the role of institutional research is changing from being the primary provider of information to one of data administration, system design, and interpretation (Matross, 1988). Whatever the office's role, ready access to—and understanding of—all major college databases is essential.

Appropriate technology, including access to the Internet. Every member of the research team needs computer hardware with adequate capabilities to handle the files and run the software appropriate to their tasks. In addition, an Internet account is becoming increasingly indispensable for communicating with colleagues, participating in professional organizations, and accessing information.

Adequate staff. Observation, conversations with colleagues, and survey research all suggest that many offices are understaffed, precluding them from reaching the full potential of institutional research. Even if dedicated and hardworking, a one- or two-person office probably cannot fulfill the role we are describing. Findings from a national survey of institutional research directors support this assertion. Asked what was the biggest obstacle to increasing the effectiveness of their office in influencing policy, respondents most frequently cited insufficient staff (Huntington and Clagett, 1993).

An institutional research office, irrespective of the size of its institution, needs at least two research professionals *in addition to* the director if it is to *regularly* contribute to collegewide policymaking. This support frees up the director's time for the intelligence gathering, committee service, informal networking, and dissemination functions that are essential if research is to have maximal impact. The demands of state and federal reporting, external surveys, and routine, recurring institutional data reporting can easily consume the time of one full-time analyst. The second analyst is needed for the in-depth, policy-focused studies that constitute the core contribution of the best institutional research.

Professional development opportunities. To keep up with new technologies, educational policy trends, changes in the environment affecting higher education, and the latest in research methodologies, institutional researchers need access to professional journals, workshops, and conferences. As the chief information officer in the top policy circle, the institutional researcher must have exposure to these kinds of resources, even when campus cost containment efforts are reducing periodical and travel budgets. Having the researcher serve this intelligence-gathering function for the campus can be a cost-effective investment.

Recognition by senior management. Acknowledgement that institutional research is a primary player in policy formation facilitates its successful achievement of that role. Knowledge that information is being sought and used in decisionmaking, and that the institutional researcher has direct input, promotes both formal and informal communications, enhancing the intelligence-gathering role.

A Performance Monitoring Indicator System for Institutional Research

To promote efficient and effective office performance, a system incorporating explicit goals, assessment tools, and staff recognition is beneficial. In this section, a performance monitoring indicator system developed by the Office of Institutional Research and Analysis (OIRA) at Prince George's Community College (PGCC) is described.

Office Goals

As part of the college's overall planning process, the OIRA prepares goals and objectives for each fiscal year. These reflect current campus strategic priorities as well as on-going functional responsibilities. The performance monitoring indicators described here are different. These emphasize office productivity and include measures applicable to individual staff performance. The nine performance goals measure total office output, campuswide service, timeliness of task completion, dissemination, and quality. Output is measured by the total number of projects completed and the percent of requested projects this represents. Campuswide service is measured by the number of projects completed for each of the college's five divisions. Timeliness is measured by the percent of priority projects completed by their target completion date. Dissemination is measured by the number of reports distributed and the number of formal presentations made. Quality is measured by the number of ERIC publications submitted, scale means on a customer satisfaction survey, and the number of awards made for superior office efforts recognized on- and off-campus for their impact. These indicators and the systems put in place to generate and track them are explained in detail below. The office's performance goals for fiscal year 1995 are shown in Table 1 below.

Assessment and Monitoring Tools

The OIRA uses four tools for generating and tracking performance indicators: a project management database system, publication typologies, a mid-year office review, and a customer satisfaction survey.

Project Management System. An indispensable tool for assessing and monitoring the performance of the research office is the Institutional Research Project Management System (IRPMS). This system is maintained on the office's standard database software package—specific project management software is not needed. (See Chambers, 1994, for a discussion

Office of Institutional Research and Analysis
Performance Goals for 1994-95

Total projects completed	100
Minimum projects per division	5
Completions/requests ratio	90%
Project completion by target date	100%
Total reports (excluding tech memos)	40
Formal presentations	6
ERIC publications	10
RUSS scale means	> 4.00

Table 1

of similar project tracking systems at several campuses.) The data elements included in IRPMS are an assigned project number, name of person requesting the service, request date, a target completion date, project title, project leader, priority (1 to 4), project status, date begun, date completed, and a notepad for brief commentary. At the beginning of the fiscal year, the office prepares an annual research plan incorporating all federal- and state-mandated reports, selected external surveys, recurring institutional data analyses and reports, and priority research projects extracted from the office's annual goals and objectives. All projects in this annual research plan or calendar are loaded into IRPMS July 1. During the course of the year, additional ad-hoc project requests are added to the system as received. (see Figure 1.) Note that IRPMS is a *project* monitoring system, not a log of all data requests received by the office. Simple data extractions and other requests that can met within a day or two are not entered in the system.

The IRPMS is used for monitoring current operations and for biannual, in-depth reviews of office performance. Prior to scheduled staff meetings, each research team member is provided a project leader turnaround sheet listing all assigned projects and providing space for updating their status. These turnarounds are returned to the director who updates the system and then generates a project status summary for all projects with target completion dates during the next 6 weeks. This summary is used during staff meetings to review and plan staff work. IRPMS also produces a summary of project activity for use in preparing the office's monthly report to the vice president. The software permits other quick reports to be extracted from the database as needed. For the in-depth assessments of office accomplishments, a standard set of performance measures is generated from IRPMS. Trends in these indicators are tracked over time in a set of data displays prominently displayed on the office's central

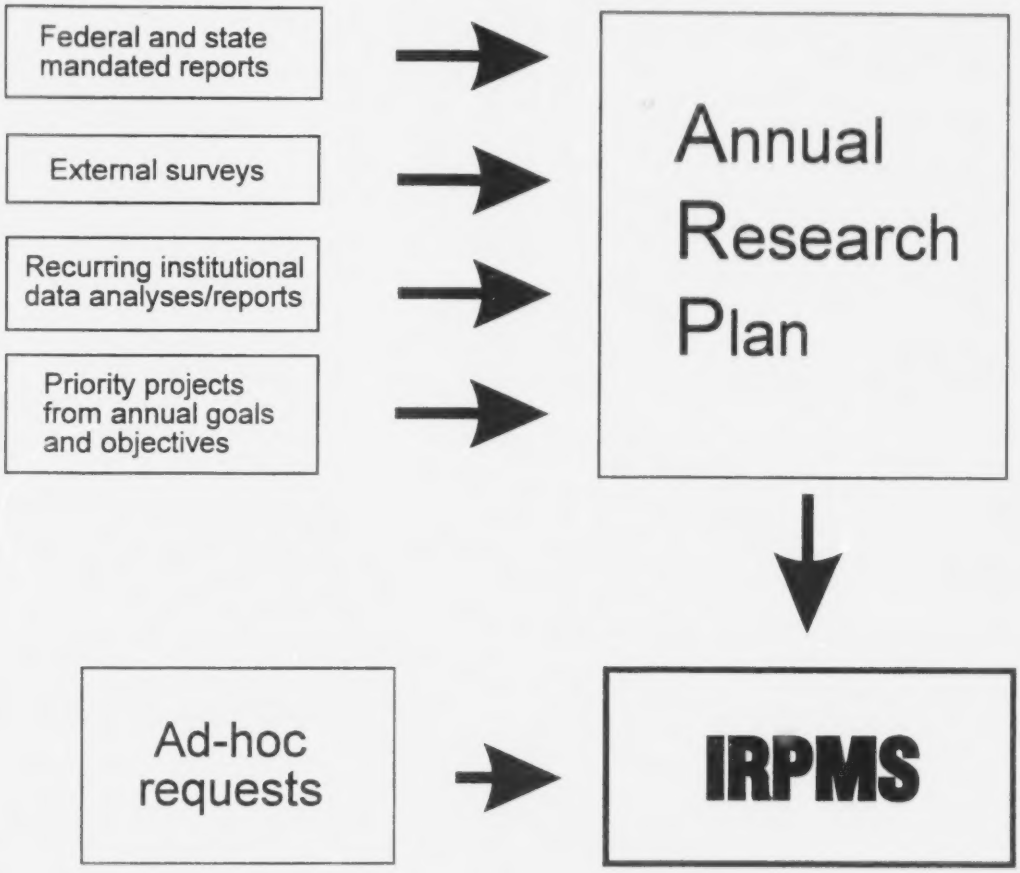

Figure 1

bulletin board. (A selection of these displays is appended.) These indicators are used for goal setting, assessing office accomplishments, and evaluating the performance of individual staff members.

Publications. Publications are a primary means of disseminating office findings. But tracking patterns in report generation also provides a good way of assessing office productivity and service to the campus community. To facilitate this, research office publications at PGCC are classified according to two schemes. First, reports are issued according to a fiscal-year and report-type classification scheme (e.g., BT95-2). The publications typology includes nine categories:

Reports to the Board. Reports prepared at the request of the Board of Trustees are issued under the *BT* numbering scheme. The majority are routine annual reports on cost containment, enrollment, facilities, staffing, and student outcomes. The Board occasionally receives reports published in other categories at the direction of the President.

Planning Briefs. These are short reports prepared for the Planning Council. Budget analyses, enrollment projections, and environmental scanning reports are typical examples.

Enrollment Analyses. Descriptive reports about the college's students constitute the majority of the reports issued in the *EA* series. Course pass rate and student persistence analyses are also included.

Market Analyses. Studies to support recruiting and marketing campaigns are included in this category. Examples are an annual market share analysis showing where county residents go to college and studies using the PG-TRAK© lifestyle cluster geo-demographic analysis system.

Program Evaluations. Evaluative studies of academic and instructional support programs are issued in this category.

Needs Assessments. Studies to assess the viability of proposed instructional programs are issued in this category.

Research Briefs. Typically short (sometimes 1 or 2 pages) summaries of research findings, this catch-all category occasionally includes larger studies not fitting into any of the above categories.

Factbooks. Data references without narrative interpretation, issued in a series of modules to facilitate updating.

Technical Memoranda/Presentation Chartbooks. This category includes documentation of office methodologies, data compilations without textual analysis, responses to specific ad hoc data inquiries, and other analyses not intended for wide distribution. Chartbooks of slides and transparencies prepared for oral presentations are also included here.

Tracking the number of publications in each of these categories over time reveals trends in campus activity and information use. The Planning Council was especially active in FY90 and FY91, reflected in high numbers of planning briefs. An increase in research briefs in the mid-1990s reflected an OIRA information dissemination strategy. Experience suggested that members of the president's staff would read short research briefs the day they were distributed, while they would tend to set aside a larger, more comprehensive report. The office's comprehensive analysis of fall enrollment, previously released in a single report, is now distributed in a series of one- or two-page briefs known as "the rainbow series" because each brief is printed on a different color paper.

Another way reports are classified is by topic or subject area. For example, budget-related publications might be issued as reports to the Board, planning briefs, and tech memos, depending on the audience and purpose of the report. Examining trends in publications by topic provides an indication of what subjects have demanded information support at different points in time. Thirteen topic areas are identified in this classification scheme: academic programs, affirmative action/campus climate, budget and finance, developmental education, enrollment forecasts, enrollment profiles, environmental scanning, facilities/space use, factbooks, market research, methods/documentation, staffing/employees, and student outcomes.

Publication topics have tended to reflect trends in Maryland higher education. Over the 1986-93 period, for example, academic program studies declined while financial analyses increased—reflecting the higher education commission's moratorium on new programs and the statewide fiscal crisis, respectively. The publications history also reflects specific institutional priorities as well. For example, developmental education and marketing were campus topics of high importance in fiscal year 1993. Student outcomes studies regained prominence in fiscal year 1994.

IRMA. While use of the project management system in routine staff meetings throughout the year ensures operational monitoring, it is useful to stop for a more ind-depth assessment of office accomplishments periodically. At PGCC, we do this twice a year. At the end of the fiscal year, the office prepares an annual report for incorporation in the college's overall "evidences of achievement" accountability report and to aid in developing goals and objectives for the following year. But we also do an "Institutional Research Mid-year Assessment" affectionately known as Irma.

RUSS. Asking your customers directly how well you have served them can provide useful feedback. PGCC's research office periodically includes a Research User Satisfaction Survey (RUSS) in its report distribution. This one-page instrument (see appendix) asks research users to rate (on a 1 to 5 scale) the relevance, timeliness, clarity, usefulness, and professionalism of the office's performance, and concludes with an open-ended question asking how the office could improve its service. However, as Zeglen (1994, p. 1) points out, customer satisfaction surveys are not sufficient by themselves:

> For example, a survey which met the general expectations held by the administrator who commissioned it could have methodological limitations in its sampling technique which would be viewed as a flaw in the larger milieu of institutional research professionals. So, customer satisfaction alone is *not* adequate as a monitor of the quality of institutional research work.

Staff Recognition and Incentives

To recognize research office staff accomplishments, and provide light-hearted incentives, PGCC's research office established four in-house award categories. Staff members are recognized for these achievements at a summer retreat, and on the bulletin board in the main office.

Team 90. To qualify for membership in Team 90, research staff must complete a minimum of 90 percent of the projects assigned to them during the year **and** complete at least 90 percent of their priority 1 and 2 projects by their target dates. Team 90 status is conferred at the end of the fiscal year based on project management system summary reports.

ERIC Publication. The Educational Resources Information Center (ERIC) sponsored by the U.S. Department of Education solicits institutional research publications for national dissemination through its on-line databases, its monthly abstract journal *Resources in Education*, the ERIC Document Reproduction Service, and its own publications such as the *ERIC Digest* series. The PGCC research office supports ERIC by submitting selected publications to the Clearinghouse each year. The decision to submit, made by the office director, is considered an honor for the report author(s). While nationally ERIC rejects half of the materials

submitted to it each year, the PGCC research office has to date a 100 percent acceptance rate. Thus the office's decision, rather than ERIC's acceptance, is the locus of the honor. The director bases the decision to submit a report to ERIC on two criteria. First, will other institutions or researchers benefit from reading it? Second, does the report reflect well on the college and on OIRA in particular? To be useful to others outside PGCC, the report must include an adequate description of the context of the research and a clear explication of the methodology used. Thus many research and planning briefs do not qualify for consideration. Similarly, many projects are so county and college specific as to be of limited value to others. Beyond these considerations, however, is an assessment of report quality. The decision to submit to ERIC recognizes particularly thorough and well-written works by OIRA staff.

Century Club. The typical distribution of an OIRA report at PGCC is 25 to 30 copies. The president's staff and other members of the collegewide Planning Council receive copies of all OIRA publications. Selected administrators, faculty, and staff with specific association with the report's content also receive copies. For cost containment reasons, other copies are printed and distributed by request only. Thus distribution above 25 or 30 copies is a measure of interest, and demand for, an office publication. To give formal recognition to this acknowledgement of a report's usefulness, the office has established *The Century Club*. An OIRA report that has circulation of 100 or more copies qualifies the author(s) for inclusion in the club. A listing of all reports meeting this standard is proudly displayed on the bulletin board in the main office.

EMI Awards. The ultimate measure of the effectiveness of institutional research is its contribution to institutional effectiveness, and the ultimate research team award is an EMI Award for achievements of Extraordinary Merit and Impact. The awards, polished stones on a black wooden base emblazoned "EMI," are crafted by the director and proudly displayed on staff members' desks. EMIs are reserved for the few projects that truly make an impact, as acknowledged by the college president, board members, outside organizations, or peer institutions. Typically, only one EMI is awarded each year, and in some years none is awarded. The director of institutional research determines if an award is deserved based on informal discussions with members of the president's cabinet and feedback from researchers and others external to the college. Projects earning EMIs are commonly the subject of conference presentations and often serve as models for studies at other colleges. While endorsement and replication by other institutions is important, the crucial factor is the impact on PGCC. Studies that successfully defuse sensitive political issues, resolve campus controversies, and contribute to a better understanding of student performance are typical candidates. Because they are reserved for those special projects that have great impact, their award is usually an obvious choice. Office recognition as an EMI commonly follows multiple, unsolicited testimonials from policymakers who have found the work most useful.

Summary

If information can improve policy choices, the institutional research professional is potentially the best person to provide it. Possessing knowledge of trustworthy information sources, technical data analysis skills, awareness of the external policy environment, and sensitivity to campus culture and personalities, the institutional researcher can be an invaluable member of the senior policymaking staff. At many institutions, this represents a higher expectation than currently held for the research function. We have enumerated the high ex-

pectations an institution should hold for institutional research, and the kinds of support institutional research has a right to expect from its institution. An example of a performance monitoring system to promote productivity and effectiveness in institutional research was described. To realize the maximum contribution from an investment in institutional research, both the institution and the practitioner need to define high expectations and commit to their accomplishment.

References

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Clagett, C.A. (1992). Assessing county support for Maryland community colleges: An institutional research success story. Paper presented at the 19th annual conference of the North East Association for Institutional Research, Washington, D.C.

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Ewell, P.T., ed. (1989). *Enhancing Information Use in Decision Making*. New Directions for Institutional Research, No. 64. San Francisco: Jossey Bass.

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Matross, R. (1988). Designing an information center: An analysis of markets and delivery systems. *AIR Professional File*, No. 31.

McLaughlin, G.W., and Snyder, J.K. (1993). Plan-do-check-act and the management of institutional research. *AIR Professional File*, No. 48.

Rowh, M. (1992). The role of the institutional research officer: Perceptions of job satisfaction. *Community College Journal for Research and Planning* 8(1): 18-26.

Terenzini, P.T. (1991). On the nature of institutional research and the knowledge and skill it requires. Paper presented at the 31st Annual Forum of the Association for Institutional Research, San Francisco.

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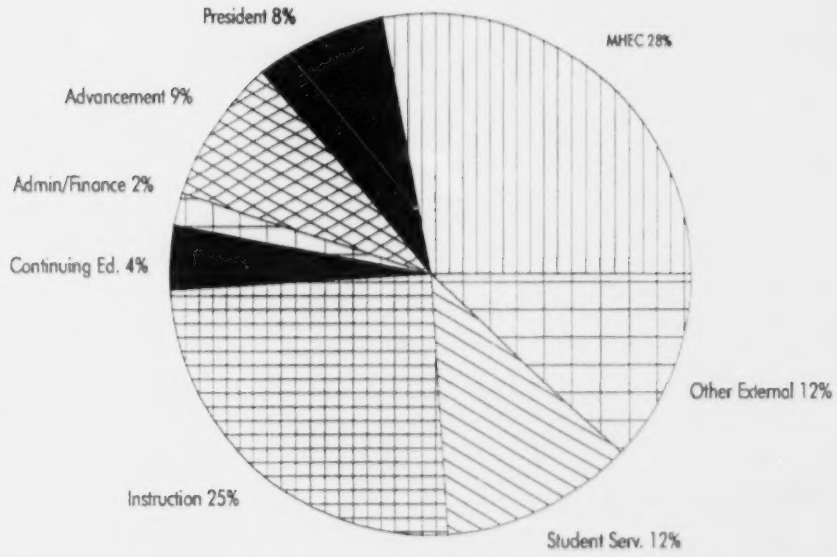
Prince George's Community College
Office of Institutional Research and Analysis

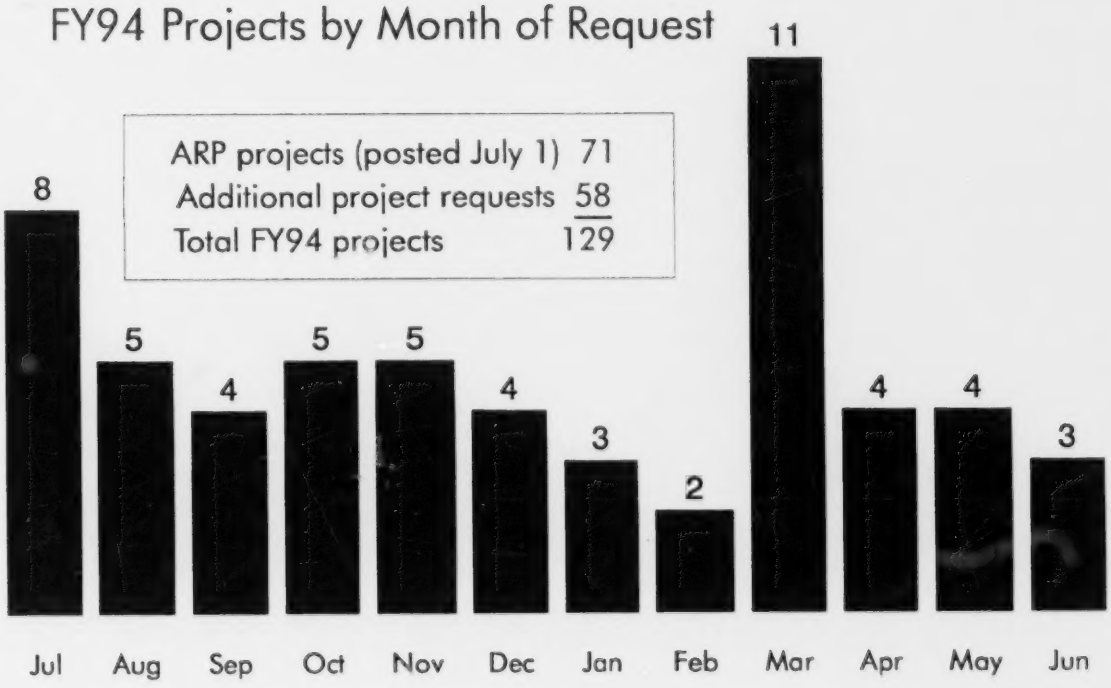
Sources of Project Requests, FY94



N = 129

FY94 Projects by Month of Request

ARP projects (posted July 1)	71
Additional project requests	58
Total FY94 projects	129



Prince George's Community College
Office of Institutional Research and Analysis

Project Status at End of Fiscal Year, FY86-94

	FY86	FY87	FY88	FY89	FY90	FY91	FY92	FY93	FY94
Accepted	105	79	132	97	132	117	114	136	129
Completed	82	66	108	85	110	98	91	116	92
Underway	8	7	6	4	8	5	6	8	9
Carried forward	1	3	6	4	8	10	12	7	21
Deleted	14	3	12	4	6	4	5	5	7
Percent Completed	78%	84%	82%	88%	83%	84%	80%	85%	71%

Productivity Indicators, FY86-94

	FY86	FY87	FY88	FY89	FY90	FY91	FY92	FY93	FY94
Publications	33	34	41	34	50	67	37	59	55
Presentations	2	4	8	6	8	14	13	8	4
Projects completed	82	66	108	85	110	98	91	116	92
FTE staff	3.0	3.0	4.5	3.5	4.5	4.5	4.5	4.5	3.5
Projects/FTE staff	27.3	22.0	24.0	24.3	24.4	21.8	20.2	25.8	26.3

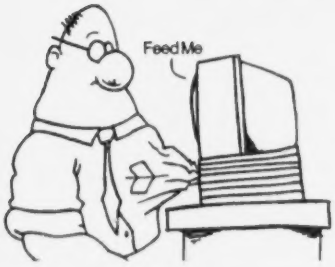
Prince George's Community College
Office of Institutional Research and Analysis

Publications Summary, FY86 - FY94

	FY86	FY87	FY88	FY89	FY90	FY91	FY92	FY93	FY94
Reports to the Board	5	5	5	5	5	4	5	4	7
Planning Briefs	4	3	3	7	10	14	4	3	3
Enrollment Analyses	6	6	8	6	5	11	6	7	4
Market Analyses	4	3	6	0	2	7	3	6	2
Needs Assessments	6	2	0	0	1	0	2	0	0
Program Evaluations	5	2	5	1	5	2	1	1	3
Research Briefs	0	10	6	8	12	10	10	17	24
Factbooks	1	1	0	1	0	1	0	1	2
Report Subtotal	31	32	33	28	40	49	31	39	45
Tech Memos/Chartbooks	2	2	8	6	10	18	6	20	10
Total Publications	33	34	41	34	50	67	37	59	55

Publications by Topic, FY86 - FY94

	FY86	FY87	FY88	FY89	FY90	FY91	FY92	FY93	FY94
Academic programs	11	6	5	1	7	2	3	3	6
Aff. Action/climate	1	0	1	2	0	1	0	3	0
Budget and finance	2	1	1	2	4	6	6	7	3
Developmental educ.	0	0	0	0	1	3	0	8	4
Enrollment forecasts	0	1	0	1	8	7	0	0	0
Enrollment profiles	6	8	6	5	8	9	3	12	9
Environmental scanning	3	2	5	5	4	3	2	3	4
Facilities/space use	1	1	1	1	1	5	2	2	3
Factbooks	1	1	0	1	0	1	0	1	2
Market research	5	3	6	0	2	7	5	9	5
Methods/documentation	0	1	2	2	2	4	1	0	1
Staffing/employees	1	1	3	1	2	4	1	1	3
Student outcomes	2	9	11	13	11	15	14	10	15
Total publications	33	34	41	34	50	67	37	59	55



PRINCE GEORGE'S COMMUNITY COLLEGE
OFFICE OF INSTITUTIONAL RESEARCH AND ANALYSIS

RESEARCH USER SATISFACTION SURVEY

We strive to provide information that is relevant, timely, clear, and useful to the college community, and to do this in a courteous, responsive, and professional manner. To help us improve our service to you, please rate our performance in terms of these attributes by circling a number from 1 (very poor) to 5 (very good). The higher the number, the better we did.

	Very Poor				Very Good
Relevance: extent to which OIRA addressed your information needs	1	2	3	4	5
Timeliness: extent to which the information was provided in a timely fashion	1	2	3	4	5
Clarity: extent to which the information was communicated clearly	1	2	3	4	5
Usefulness: extent to which the information was useful to you	1	2	3	4	5
Professionalism: extent to which OIRA staff were courteous and responsive	1	2	3	4	5

How could OIRA improve its service?

Additional comments:

PLEASE RETURN TO THE OFFICE OF INSTITUTIONAL RESEARCH AND ANALYSIS, KENT HALL 231. THANKS!

369 **Student Outcomes Performance Accountability Report**
(Clagett, November 1988, BT89-2)

338 **Student Outcomes Annual Summary Report**
(Clagett, August 1993, BT94-2)

297 **Employee Perceptions of the Racial Climate at PGCC**
(Boughan, December 1992, RB93-14)

257 **Student Learning Outcomes Assessment Report**
(Clagett, December 1994, BT95-3)

182 **Institutional Factbook**
(Diehl, February 1989, FB89-1)

144 **PGCC Facts: Fourth Edition**
(Diehl, September 1990, FB91-1)

136 **P.G. County at the Demographic Crossroads**
(Boughan, March 1992, PB92-4)

134 **Institutional Factbook**
(Clagett, June 1987)

119 **Student Perceptions of the Racial Climate at PGCC**
(Boughan, July 1992, RB93-1)

118 **The PG-TRAK© Manual: Using PGCC's Cluster System**
(Boughan, November 1990, MA91-3)

117 **P.G. County Business Training Needs Assessment**
(Clagett and Huntington, January 1988, MA88-4)

110 **Student Right-to-Know Completion Rates**
(Clagett, July 1993, RB94-2)

102 **Transfers to Maryland Four-year Institutions**
(Clagett and Huntington, June 1990, RB90-11)

EMI Award

Achievements of Extraordinary Merit and Impact

FY87	C. Clagett	ENSCAN[87] Environmental Scan
FY88	K. McCoy	Survey of Non-returning Students
FY89	C. Clagett	Student Outcomes Report
FY90	K. Boughan	Nursing Program Evaluation
	P. Diehl	Desktop Publishing Design and Production
FY91	K. Boughan	PG-TRAK Lifestyle Cluster Analysis System
	C. Clagett	Assessing County Support
	P. Diehl	PGCC Facts: Fourth Edition
	K. McCoy	Analysis of Developmental Education
FY92	K. Boughan	P.G. County at the Demographic Crossroads
FY93	K. Boughan	Campus Racial Climate Studies

the IRMA Report

the IRMA Report

INSTITUTIONAL RESEARCH MID-YEAR ASSESSMENT

OFFICE PROJECT STATUS AND STAFF ACHIEVEMENTS
AS OF DECEMBER 31, 1994

FY95 Mid-Year Goal Achievement

	Annual Goal	Final FY94	Mid-Year FY95
Total projects completed	100	92	72
Completions/requests ratio	90%	71%	68%
Project completion by due date	100%	78%	94%
Total reports (excluding tech memos)	40	45	29
ERIC publications	10	6	1
Formal presentations	6	4	3

Appendix

MdAIR Chronology

Constitution and Bylaws

MdAIR Chronology

	1986-87	1987-88	1988-89	1989-90
President	1986-89 Steering Committee Marilyn Brown, Chair Paul Davalli Kathy Farnsworth Pat Haeuser Sam Helms Ron Maggiore Dan McConochie			Ron Maggiore
President-elect				Pat Haeuser
Past President				Marilyn Brown
Secretary-Treasurer				Dan McConochie
Community colleges				Craig Clagett
Independents				Melissa Gilbert
Public comprehensive				Sam Helms
Public doctoral				Nancy Ochsner
Non-campus agency				Robin Huntington
Conference Theme	Getting Started in Maryland	Next Steps	Coming of Age	A Look at Ourselves
Location	Bowie State College	UMBC	Essex CC	Hood College
Date	Nov. 13, 1987	Nov. 11, 1988	Nov. 17, 1989	Nov. 9, 1990
Keynote Speaker	Laslo Boyd	Anne-Marie McCartan	Shaila Aery	Gerald McLaughlin
Attendance	71	61	68	66

MdAIR Chronology

1990-91	1991-92	1992-93	1993-94	1994-95
Pat Haeuser	Craig Clagett	Paul Davalli	Nancy Ochsner	Javier Miyares
Ron Maggiore	Paul Davali	Nancy Ochsner	Javier Miyares	Dan McConochie
Ron Maggiore	Pat Haeuser	Craig Clagett	Paul Davalli	Nancy Ochsner
Dan McConochie	Kathy Farnsworth	Kathy Farnsworth	Robin Huntington	Robin Huntington
Craig Clagett	Dan McConochie	Laurie Tripp	Matt Kelly	Ron Heacock
Kathy Farnsworth	Helen Kerr	Yun Kim	Linda Winkler	Rebecca Walker
Sam Helms	Sam Helms	Martha Gilbert	Jane Akers	Ella Smith
Nancy Ochsner	Robin Huntington	Robin Huntington	Dan Thomas	Paul Davalli
Mike Keller	Mike Keller	Mike Keller	Marvin Titus	Charles Benil
Celebrating Five Years	New Ideas for Changing Times	Future Shock	Linking Education Segments	Distance Learning: A New Paradigm
Towson State University	Washington College	Howard Community College	Morgan State University	Morgan State University
Nov. 15, 1991	Nov. 11, 1992	Nov. 12, 1993	Oct. 31, 1994	Nov.17, 1995
Hoke Smith	Edward Lewis	Robert Darden and James Rogers	Walter Amprey	TBA
60	105	82	92	NA

CONSTITUTION
OF THE
MARYLAND ASSOCIATION FOR INSTITUTIONAL RESEARCH

Article I *Name*

The name of the organization shall be the Maryland Association for Institutional Research (MdAIR).

Article II *Purpose*

The major purposes of this Association shall be to provide: 1) for the fostering of unity and cooperation among persons having interests and activities related to institutional research in Maryland institutions of postsecondary education; 2) for the dissemination of information and the interchange of ideas on topics of common interest; and 3) for the continued professional development of individuals engaged in institutional research.

Article III *Membership and Voting*

Section 1. Full membership shall be open to any person actively engaged in institutional research, or who has professional interest in activities related to institutional research. Associate membership shall be open to students.

Section 2. Membership in the Association and election to any office or appointment to any committee shall not be based on race, ethnic origin, sex, age, or religious conviction.

Section 3. Membership shall include all individuals who pay membership dues.

Section 4. Membership is valid on an annual basis from the beginning of the annual conference (normally October/November) to the beginning of the next annual conference.

Section 5. Voting privileges on Association business will be limited to full members of the Association.

Section 6. A roster of members of MdAIR shall be maintained by the Secretary-Treasurer and distributed to the membership each year.

Article IV *Officers and Duties*

Section 1. The officers of the Association shall consist of a President, a President Elect, and a Secretary-Treasurer.

Section 2. ***President*** - The President shall: a) chair the Executive Committee and preside at the business meetings of the Association; b) appoint committee members unless membership is specified in this Constitution or in the Bylaws; c) work with the Executive Committee in formulating policy consistent with the Constitution and Bylaws and expediting the implementation of such policies; d) have general responsibility for promoting membership in the Association; e) plan the program for the annual conference; and f) perform any other duties necessary to assist the Association in achieving its stated purposes. The term of office for the President shall be one year.

Section 3. ***President Elect*** - The President Elect shall: a) plan the program for the annual summer meeting; b) coordinate the SIGs (special interest groups); c) assist the President in other duties as the need arises; and d) assume the duties of the President in the event that person cannot complete his/her term. The President Elect shall succeed to the office of President at the end of the one-year term as President Elect.

Section 4. ***Secretary-Treasurer*** - The Secretary-Treasurer shall: a) maintain and publish an annual list of the membership of the Association; b) keep the minutes of the annual business meeting and of the meetings of the Executive Committee; c) collect annual conference registration and membership dues; d) provide for the payment of duly authorized expenses of the Association; e) prepare informal financial statements for the Executive Committee and complete financial reports for the annual business meeting; f) distribute notices, minutes, and other items of interest to the Association membership; and g) perform any other duties as assigned by members of the Executive Committee.

Section 5. ***Vacancies*** - Unless otherwise provided for in the Constitution, the Executive Committee shall have the authority to fill a vacancy by appointing an Association member to fill an unexpired term. A person appointed to finish the term of President Elect will serve until the following annual business meeting at which a new President will be elected as well as a President Elect. If the President resigns, the President Elect completes the year as President and is also the President the following year. In all other situations, the person appointed to an unexpired term shall be eligible to succeed him/herself and to serve a full term as provided in the Constitution.

Section 6. ***Succession*** - Officers cannot succeed themselves in the same office except as noted in Section 5.

Section 7. *Nomination of Candidates for Office*

A. The present Secretary-Treasurer will furnish a written roster of full members for nomination to the membership by June 1 of each year.

B. Each full member shall have the right to nominate one candidate for the office of President Elect and, when applicable (every second year) one candidate for the office of Secretary-Treasurer, and one candidate for their Segmental Representative. Nominations shall be returned to the Secretary-Treasurer by July 1. The Executive Committee shall obtain permission from each nominee to place his/her name on the ballot. A member can appear on the ballot as a nominee for only one position.

C. The Secretary-Treasurer shall then disseminate ballots as specified below to be received by the membership by September 1.

Section 8. *Election*

A. Each full member shall be entitled to one vote for each office on the ballot.

B. The full member shall exercise the right to vote by returning his or her ballot to the Secretary-Treasurer by September 15.

C. The President and the Secretary-Treasurer shall count the ballots and announce the name of the President Elect and, when applicable, the Secretary-Treasurer for the coming year who received a majority of votes cast.

D. In case of a tie, a run-off election between the candidates tied shall be conducted by the Secretary-Treasurer between October 1 and the annual business meeting.

E. Announcement of the result of the election shall be made at the annual business meeting.

F. All newly elected officers shall assume office at the close of the annual business meeting following the announcement of their election.

Article V *Segmental Representatives*

Section 1. There shall be one (1) Segmental Representative from each of the following groups representing postsecondary education in the State of Maryland and having a minimum of five current, *bona fide* members in the Association.

a) Public Community Colleges
b) Private/Independent Colleges/Universities
c) Public Doctoral Granting Institutions
d) Other Public Four-year Colleges/Universities
e) Non-campus-based Organizations and Proprietary Institutions

Section 2. Segmental Representatives for each group shall be elected by MdAIR membership within the respective group and shall serve for a term of one year and may succeed themselves.

Section 3. Each segmental representative will represent his/her respective group as a member of the Executive Committee.

Article VI *Executive Committee*

Section 1. The Executive Committee shall be composed of the officers designated in Article IV, the Segmental Representatives and the immediate Past President as an *ex officio* member.

Section 2. The Executive Committee shall: a) conduct the general affairs of the Association between its annual meetings; b) formulate Association policies consistent with the Constitution and Bylaws; c) set the time and location of the next year's meeting, and assist the President in planning the annual meeting; d) function as a budget committee; and e) fill vacancies, unless otherwise provided for in the Constitution.

Section 3. All Executive Committee members must maintain membership (i.e., pay the established membership dues) in the Association for each year of their term.

Article VII *Amendments*

This Constitution may be amended at the annual business meeting.

Section 1. Proposed amendments to this Constitution: a) may be submitted to any member of the Executive committee by a full member of this Association in writing by August 1; or b) may originate through actions in the Executive Committee.

Section 2. Proposed amendments shall be distributed by September 1 and at the annual business meeting by the Secretary-Treasurer.

Section 3. Proposed amendments to this Constitution conforming with Sections 1-2 of this Article shall become effective at the end of the annual business meeting at which they are approved by two-thirds of the members present.

Article VIII *Bylaws*

The Association shall adopt bylaws consistent with this Constitution as required for the conduct of its affairs.

Section 1. New bylaws or proposed changes in existing bylaws: 1) may be submitted in writing to any member of the Executive Committee by August 1; or b) may originate through actions in the Executive Committee.

Section 2. The Secretary-Treasurer shall be responsible for distributing proposed bylaw changes initiated in accordance with Section 1 of this Article for consideration at the annual business meeting.

Section 3. A proposed change in the bylaws shall become effective at the end of the annual business meeting at which it was approved by a majority of the members present.

BYLAWS

Section 1. ***Annual Conference***

The annual conference of the Association shall be held each year at a site and date determined by the Executive Committee. The annual business meeting shall be held in conjunction with the annual conference.

Section 2. ***Dues/Fees***

Membership dues shall be set by the action of the Executive Committee.

Section 3. ***Committees***

Such other committees as deemed necessary for the welfare of the Association may be appointed by the President.

Section 4. ***Rules for Conducting Annual Business Meeting***

The annual business meeting will be conducted according to Roberts' Rules of Order.

Section 5. ***Quorum***

The full members who attend the annual business meeting shall constitute a quorum.

Desktop Design by Pat Diehl
Research Technician
Prince George's Community College

Previous MdAIR Publications

Maryland 2000: Journal of the Maryland Association for Institutional Research
Volume II (Fall 1993). Edited by Craig A. Clagett and Robin B. Huntington

Contents: **"The Geo-Demographic Approach to Student Recruitment: The PG-TRAK Lifestyle Cluster System"** (Karl Boughan); **"Evaluating College Services: A QUEST for Excellence"** (Barbara B. Livieratos and Benay C. Leff); **"Implementing an Information Infrastructure for Enrollment Management"** (Craig A. Clagett and Helen S. Kerr); **"Institutional Effectiveness: Designing Systems to Promote Utilization"** (Ronald C. Heacock); **"Effective Institutional Research: Obstacles and Solutions"** (Robin B. Huntington and Craig A. Clagett); **"Surveys for College Guidebooks: A Guide to Guide Usage"** (Robin B. Huntington and Nancy L. Ochsner); **"The Need for Public Colleges and Universities To Redefine Their Relationships with State Government"** (Edward T. Lewis); **"Networks for Success: Using BITNET and Internet in Institutional Research"** (Merrill Pritchett); **"Milestones and Memories: A History of MdAIR"** (Robin B. Huntington).

Making a Significant Difference with Institutional Research
Craig A. Clagett and Robin B. Huntington (1993)

Chapters: **Know Your Institution and Its Environment; Operate Efficiently; Communicate Effectively.**

Maryland 2000: Journal of the Maryland Association for Institutional Research
Volume I (Fall 1991), Edited by Craig A. Clagett

Contents: **"Environmental Scanning: Assessing Local Business Training Needs"** (Craig A. Clagett and Robin B. Huntington); **"Student Outcomes Performance Accountability Reports: A Prototype"** (Craig A. Clagett); **"Accountability and Assessment in Maryland Higher Education"** (Shaila R. Aery); **"Taxographic Space: A Radically Different Paradigm for Information Management"** (David A. Webb); **"Selecting Tools for Institutional Research"** (Robin B. Huntington); **"When an Institutional Researcher Needs a Statistical Package—and More"** (Merrill R. Pritchett); **"Staff Attitudes Toward Outcomes Assessment"** (Martha A. Matlick).

The Institutional Research Practitioner: A Guidebook to Effective Performance
Craig A. Clagett and Robin B. Huntington (1990)

Chapters: **Defining Institutional Research; Selecting Tools for Institutional Research; Presenting Findings to Management; Maximizing Office Productivity; Increasing Institutional Research Staffing.**